HIGHWAY WORK PROPOSAL

Wisconsin Department of Transportation
06/2017 s.66.0901(7) Wis. Stats

Proposal Number: 001

COUNTY	STATE PROJECT	FEDERAL	PROJECT DESCRIPTION	HIGHWAY
Milwaukee	1060-33-84	WISC 2020466	Zoo Ic, Ush 45; Swan Blvd To Burleigh Street	USH 045
Milwaukee	1060-34-77	N/A	Zoo Ic, North Avenue; 118th Street To 116th Street	LOC STR
Milwaukee	1100-18-73	WISC 2021001	Zoo Ic, Polymer Overlays; Zoo Ic Mainline Bridges	VAR HWY
Milwaukee	1100-18-76	WISC 2020467	Zoo I/C Overpasses; Various Locations	VAR HWY

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 Payable to: Wisconsin Department of Transportation	Attach Proposal Guaranty on back of this PAGE.
Bid Submittal Date: October 13, 2020 Time (Local Time): 11:00 am	Firm Name, Address, City, State, Zip Code **SAMPLE** **NOT FOR BIDDING PURPOSES**
Contract Completion Time October 15, 2023	
Assigned Disadvantaged Business Enterprise Goal 15%	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)	(Bidder Signature)
(Print or Type Name, Notary Public, State Wisconsin)	(Print or Type Bidder Name)
(Date Commission Expires)	(Bidder Title)

Notary Seal

Type of Work: **For Department Use Only**

Removals, grading, dense graded base, concrete pavement, concrete curb and gutter, concrete sidewalk, concrete barrier, HMA pavement, storm sewer, erosion control, permanent signing, traffic signals, traffic control, pavement marking, street lighting, structures, bridges, retaining walls, noise barriers, overhead sign structures, and restoration

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:
https://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 PM local time on the Thursday before the letting. Check the department's web site after 5:00 PM 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 PM 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:
https://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, 4th floor, 4822 Madison Yards Way, 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:
https://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 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	12
2.	General Information, Definitions, and Terms.	12
3.	Scope of Work.	13
4.	Mandatory Pre-Bid Meeting.	13
5.	Prosecution and Progress.	14
6.	Lane Rental Fee Assessment.	34
7.	Traffic.	35
8.	Holiday and Special Event Restrictions.	43
9.	Utilities.	44
10.	Other Contracts.	63
11.	Railroad Insurance and Coordination – Soo Line Railroad Company (CP).	63
12.	Railroad Insurance and Coordination – Union Pacific Railroad.	67
13.	Railroad Insurance and Coordination – Union Pacific Railroad Company.	71
14.	Union Pacific Railroad Company Requirements.	75
15.	Hauling Restrictions.	77
16.	Information to Bidders, U.S. Army Corps of Engineers Section 404 Permit.	77
17.	Information to Bidders, WPDES General Construction Storm Water Discharge Permit.	77
18.	Environmental Protection, Aquatic Exotic Species Control.	77
19.	Environmental Protection – Waste.	78
20.	Erosion Control	79
21.	Erosion Control Structures.	81
22.	Health and Safety Requirements for Workers Remediating Petroleum Contamination.	81
23.	Public Convenience and Safety.	81
24.	Notice to Contractor – Personnel Identification Program.	81
25.	Notice to Contractor – Media Relations.	82
26.	Notice to Contractor – Safety.	82
27.	Notice to Contractor – Milwaukee County Transit System.	83
28.	Notice to Contractor – Airport Operating Restrictions	83
29.	Notice to Contractor – Environmental Sampling of Existing UPRR Track Section.	83
30.	Notice to Contractor – Disposal of Treated Railroad Ties and Treated Timber Pilings.	84
31.	Notice to Contractor – Possible Additional Asbestos Containing Material under Ballast on B-40-137	84
32.	Notice to Contractor – Contamination Beyond Construction Limits.	84
33.	Public Involvement Meetings.	84
34.	Traffic Meetings and Traffic Control Scheduling.	84
35.	Material and Equipment Staging	85
36.	BIM for Infrastructure Model Specification for Zoo Interchange North Leg Projects.	85
37.	Available Documents.	92

38. Eliminated Work 92
39. Geotechnical Investigation Information 93
40. Contract Award and Execution. 94
41. Contractor Notification 100
42. Municipal Acceptance of Sanitary Sewer and Water Main Construction. 100
43. Referenced Construction Specifications. 100
44. Contractor Document Submittals. 101
45. Dust Control Implementation Plan. 101
46. Project Site Air Quality. 102
47. Maintaining Drainage. 103
48. Subletting the Contract. 103
49. Abatement of Asbestos Containing Material B-40-0137, Item 203.0210.S.0001; Abatement of Asbestos Containing Material B-40-0259, Item 203.0210.S.0004. 103
50. Removing Old Culverts and Bridges 105
51. Debris Containment B-40-138, Item 203.0225.S.0001; Debris Containment B-40-875, Item 203.0225.S.0002; Debris Containment B-40-876, Item 203.0225.S.0003; Debris Containment B-40-877, Item 203.0225.S.0004; 107
52. Removing Old Structure Over Waterway With Minimal Debris Station 408+50NS, Item 203.0600.S.0001; Removing Old Structure Over Waterway With Minimal Debris Station 220+00NSSB, Item 203.0700.S.0002. 108
53. Pavement Breaking Equipment. 109
54. Removing Concrete Barrier 109
55. Removing or Abandoning Miscellaneous Structures. 109
56. Storm Sewer. 109
57. Abandoning Sewer, Item 204.0291.S. 110
58. Removing Advance Flasher Assemblies Type 1, Item 204.9001.S. 110
59. Removing Apron Endwall, Item 204.9060.S.0002. 111
60. Removing Distribution Center, Item 204.9060.S.1001. 112
61. Removing Lighting Units, Item 204.9060.S.1002. 112
62. Removing Sign Lighting, Item 204.9060.S.1003. 113
63. Removing Poles Wood 60-FT, Item 204.9060.S.1004. 113
64. Removing Poles Wood 60-FT and Floodlight, Item 204.9060.S.1005. 113
65. Removing Poles Wood 35-FT, Item 204.9060.S.1006. 114
66. Removing Poles Wood 35-FT and Floodlight, Item 204.9060.S.1007. 114
67. Removing Underdeck Lighting, Item 204.9060.S.1008. 115
68. Removing Luminaires Underdeck Lighting, Item 204.9060.S.1009. 116
69. Removing Temporary Precast Trench Drain, Item 204.9090.S.0005. 116
70. Removing Drain Slotted Vane, Item 204.9090.S.0006. 116
71. Removing Sheet Pile Shoring, Item 204.9090.S.0100. 117
72. Removing Temporary Traffic Signals IH 41 SB On Ramp & W North Ave, Item 204.9105.S.3001; Removing Temporary Traffic Signals IH 41 NB On Ramp & W North Ave, Item 204.9105.S.3002. 117
73. Removing Traffic Signals W North Ave & N 116th St, Item 204.9105.S.3101. 118
74. Roadway and Drainage Excavation. 119

75. Roadway Excavation....119
76. Excavation, Hauling, and Disposal of Petroleum Contaminated Soil, Item 205.0501.S....119
77. Excavation For Structures Retaining Walls....123
78. QMP Subgrade. 124
79. QMP Subgrade (UPRR)....130
80. Embankment at Union Pacific Railroad 136
81. QMP Base Aggregate Lab Location. 137
82. Base Aggregate Dense 1 1/4-Inch for Lower Base Layers....137
83. Base Aggregate Dense 1 1/4-Inch Special....137
84. Select Crushed Material....138
85. Concrete Pavement Approach Slab....138
86. Concrete Pavement Joint Layout, Item 415.5110.S. 138
87. Concrete Maturity Testing....139
88. QMP HMA Pavement Nuclear Density. 139
89. Asphaltic Surface Temporary....143
90. Cold Patch, Item 495.1000.S. 143
91. Concrete Masonry Structures. 144
92. Concrete Masonry Soldier Pile Footings UPRR. 144
93. Deadman Tiebacks UPRR. 145
94. QMP Drilled Shafts....147
95. Concrete Curing Materials. 152
96. Backfill Slurry. 152
97. Ice Hot Weather Concreting, Item 501.1000.S. 153
98. Concrete Masonry Soldier Pile Footings, Item 502.0110.S. 153
99. Expansion Device. 154
100. Expansion Device Modular, Item 502.3111.S.0007....155
101. Bar Steel Reinforcement HS Stainless Structures, Item 505.0800.S. 158
102. Early Shop Drawing Notice to Proceed for Structure B-40-878....159
103. Fracture Critical Material for Union Pacific Railroad Company Structures. 159
104. Fabricator Certification for Union Pacific Railroad Company Structures. 160
105. Shop Assembly for Union Pacific Railroad Company Structures. 160
106. Shop and Field Weld Inspection and Testing for Union Pacific Railroad Company Structures. 160
107. Timber Lagging UPRR. 160
108. Sawing Pavement Deck Preparation Areas, Item 509.0310.S. 161
109. Polymer Overlay, Item 509.5100.S. 161
110. Concrete Staining B-40-792, Item 517.1010.S.0001; Concrete Staining B-40-793, Item 517.1010.S.0002; Concrete Staining B-40-794, Item 517.1010.S.0003; Concrete Staining B-40-875, Item 517.1010.S.0004; Concrete Staining B-40-876, Item 517.1010.S.0005; Concrete Staining B-40-877, Item 517.1010.S.0006; Concrete Staining B-40-878, Item 517.1010.S.0007; Concrete Staining B-40-879, Item 517.1010.S.0008; Concrete Staining R-40-561, Item 517.1010.S.0016; Concrete Staining R-40-564, Item 517.1010.S.0017; Concrete Staining R-40-567, Item 517.1010.S.0018; Concrete Staining R-40-568, Item 517.1010.S.0019; Concrete Staining R-40-569, Item 517.1010.S.0020; Concrete Staining R-40-570, Item 517.1010.S.0021; Concrete Staining R-40-572, Item 517.1010.S.0022; Concrete Staining R-40-573, Item

517.1010.S.0023; Concrete Staining R-40-576, Item 517.1010.S.0024; Concrete Staining R-40-622, Item 517.1010.S.0025; Concrete Staining R-40-632, Item 517.1010.S.0026; Concrete Staining R-40-635, Item 517.1010.S.0027; Concrete Staining S-40-67, Item 517.1010.S.0030; Concrete Staining S-40-69, Item 517.1010.S.0031; Concrete Staining S-40-70, Item 517.1010.S.0032; Concrete Staining S-40-71, Item 517.1010.S.0033; Concrete Staining S-40-73, Item 517.1010.S.0034; Concrete Staining S-40-75, Item 517.1010.S.0035; Concrete Staining S-40-77, Item 517.1010.S.0036; Concrete Staining S-40-145, Item 517.1010.S.0037; Concrete Staining S-40-442, Item 517.1010.S.0038; Concrete Staining S-40-783, Item 517.1010.S.0039; Concrete Staining S-40-784, Item 517.1010.S.0040; Concrete Staining S-40-785, Item 517.1010.S.0041; Concrete Staining S-40-786, Item 517.1010.S.0042; Concrete Staining S-40-967, Item 517.1010.S.0043. 166

111. Concrete Staining Multi-Color B-40-792, Item 517.1015.S.0001; Concrete Staining Multi-Color B-40-793, Item 517.1015.S.0002; Concrete Staining Multi-Color B-40-794, Item 517.1015.S.0003; Concrete Staining Multi-Color B-40-875, Item 517.1015.S.0004; Concrete Staining Multi-Color B-40-876, Item 517.1015.S.0005; Concrete Staining Multi-Color B-40-877, Item 517.1015.S.0006; Concrete Staining Multi-Color R-40-561, Item 517.1015.S.0010; Concrete Staining Multi-Color R-40-564, Item 517.1015.S.0011; Concrete Staining Multi-Color R-40-568, Item 517.1015.S.0013; Concrete Staining Multi-Color R-40-569, Item 517.1015.S.0014; Concrete Staining Multi-Color R-40-570, Item 517.1015.S.0015; Concrete Staining Multi-Color R-40-572, Item 517.1015.S.0016; Concrete Staining Multi-Color R-40-632, Item 517.1015.S.0017. 169

112. Architectural Surface Treatment B-40-792, Item 517.1050.S.0001; Architectural Surface Treatment B-40-793, Item 517.1050.S.0002; Architectural Surface Treatment B-40-794, Item 517.1050.S.0003; Architectural Surface Treatment B-40-875, Item 517.1050.S.0004; Architectural Surface Treatment B-40-876, Item 517.1050.S.0005; Architectural Surface Treatment B-40-877, Item 517.1050.S.0006; Architectural Surface Treatment B-40-878, Item 517.1050.S.0007; Architectural Surface Treatment R-40-561, Item 517.1050.S.0016; Architectural Surface Treatment R-40-564, Item 517.1050.S.0017; Architectural Surface Treatment R-40-567, Item 517.1050.S.0018; Architectural Surface Treatment R-40-568, Item 517.1050.S.0019; Architectural Surface Treatment R-40-569, Item 517.1050.S.0020; Architectural Surface Treatment R-40-570, Item 517.1050.S.0021; Architectural Surface Treatment R-40-572, Item 517.1050.S.0022; Architectural Surface Treatment R-40-573, Item 517.1050.S.0023; Architectural Surface Treatment R-40-576, Item 517.1050.S.0024; Architectural Surface Treatment R-40-622, Item 517.1050.S.0025; Architectural Surface Treatment R-40-632, Item 517.1050.S.0026; Architectural Surface Treatment R-40-635, Item 517.1050.S.0027. 171

113. Driven Piles Using Pile Dynamic Analyzer 172

114. Noise Barriers Double-Sided Sound Absorptive N-40-82, Item 531.0300.S.0001; Noise Barriers Double-Sided Sound Absorptive N-40-83, Item 531.0300.S.0002; Noise Barriers Double-Sided Sound Absorptive N-40-84, Item 531.0300.S.0003; Noise Barriers Double-Sided Sound Absorptive N-40-85, Item 531.0300.S.0004; Noise Barriers Double-Sided Sound Absorptive N-40-86, Item 531.0300.S.0005; Noise Barriers Double-Sided Sound Absorptive N-40-87, Item 531.0300.S.0006. 173

115. Concrete Barrier. 180

116. Catch Basins, Manholes, and Inlets 180

117. Adjusting Storm Sewer Structures. 182

118. Cover Plates Temporary, Item 611.8120.S. 182

119. Pipe Grates, Item 611.9800.S. 182

120. Crash Cushions Permanent Low Maintenance 183

121. Fence Safety, Item 616.0700.S. 183

122. Soil Stabilizer Type B 184

123. Foundation Drilling 36-Inch Diameter UPRR. 184

124. Sign Supports Concrete Masonry. 184

125. Signs Type I and II. 185

126. No Trespassing Signs UPRR. 186

127. Covering Signs. 188
128. Traffic Control. 188
129. Work Zone Ingress - Egress. 188
130. Nighttime Work Lighting-Stationary. 189
131. Dynamic Late Merge System, Item 643.1100.S. 190
132. Traffic Control Interim Lane Closure, Item 643.4100.S. 193
133. Temporary Pavement Marking 193
134. Marking Replace Line Wet Reflective Epoxy 4-inch, Item 646.1041.S; 193
135. Marking Replace Line Contrast Wet Reflective Epoxy 4-inch, Item 646.1546.S; Marking Replace Line Contrast Wet Reflective Epoxy 8-inch, Item 646.3546.S. 194
136. General Requirements for Electrical Work 195
137. Electrical Conduit. 195
138. Install Conduit Into Existing Item, Item 652.0700.S. 195
139. Electrical Service Meter Breaker Pedestal IH 41 SB On Ramp & W North Ave, Item 656.0200.3001; Electrical Service Meter Breaker Pedestal IH 41 NB On Ramp & W North Ave, Item 656.0200.3002; Electrical Service Meter Breaker Pedestal W North Ave & N 116th St, Item 656.0200.3101. 196
140. Traffic Signal Faces. 196
141. Pedestrian Push Buttons 196
142. Lighting Systems 197
143. Ramp Closure Gates 30-FT, Item 662.1030.S; Ramp Closure Gates 37-FT, Item 662.1037.S; Ramp Closure Gates 40-FT, Item 662.1040.S. 199
144. Intelligent Transportation Systems (ITS) – Control of Materials. 200
145. Intelligent Transportation Systems - General Requirements. 201
146. Install ITS Field Cabinet, Item 673.0200.S. 204
147. Install Pole Mounted Cabinet, Item 673.0225.S. 204
148. Removing 50-Foot Camera Pole, Item 677.9051.S. 205
149. Removing CCTV Camera, Item 677.9200.S. 206
150. Communication Systems. 206
151. Install Overhead Freeway DMS Full Matrix, Item 678.0100.S. 207
152. QMP Concrete Pavement Special Requirements. 207
153. EBS Excavation, Item SPV.0035.0001. 212
154. EBS Backfill, Item SPV.0035.0002. 213
155. Excavation, Hauling, and Reuse of Low-Level Contaminated Soil, Item SPV.0035.0003. 214
156. Backfill Controlled Low Strength UPRR, Item SPV.0035.0800. 217
157. HPC Masonry Structures, Item SPV.0035.4000. 218
158. Rapid Set Deck Repair, Item SPV.0035.4010. 222
159. Lightweight Foamed Concrete Fill, Item SPV.0035.4020. 223
160. Portable Speed Trailer, Item SPV.0045.0900. 228
161. Removing Old Sign Structure S-40-233, Item SPV.0060.0001; A General 228
162. Concrete Barrier Transition Type G1, Item SPV.0060.0101; Concrete Barrier Transition Type G2, Item SPV.0060.0102; Concrete Barrier Transition Type G3, Item SPV.0060.0103; Concrete Barrier Transition Type G4, Item SPV.0060.0104; Concrete Barrier Transition Type G5, Item SPV.0060.0105; Concrete Barrier Transition Type M1, Item SPV.0060.0110. 229

163. Concrete Barrier Transition Type S42C to S56C, Item SPV.0060.0112. 229
164. Concrete Barrier Type S42 End Anchor, Item SPV.0060.0115. 230
165. Mobilizations Emergency Pavement Repair, Item SPV.0060.0120. 230
166. Section Corner Monuments, Item SPV.0060.0125. 231
167. Cross Stitching Longitudinal Joints and Cracks, Item SPV.0060.0130. 232
168. Crack and Damage Survey Single or Double Unit Residential, Item SPV.0060.0150; Crack and Damage Survey Multi-Unit Residential, Item SPV.0060.0155; Crack and Damage Survey Commercial Public or Industrial, Item SPV.0060.0160. 233
169. Maintain and Salvage Crash Cushions Temporary Left In Place, Item SPV.0060.0165. 235
170. Marking Contrast Epoxy Special Marking Arrow, Item SPV.0060.0400. 236
171. Remove Grooved in Pavement Marking Thermoplastic Arrows and Words, Item SPV.0060.0405. 236
172. Baseline CPM Progress Schedule, Item SPV.0060.0601; Monthly CPM Progress Schedule Updates, Item SPV.0060.0602. 237
173. Exposing Existing Infrastructure Paved Area, Item SPV.0060.0603. 243
174. Exposing Existing Infrastructure Unpaved Area, Item SPV.0060.0604. 244
175. Traffic Control Close-Open Freeway Entrance Ramp, Item SPV.0060.0910. 246
176. Traffic Control Local Road Lane Closures, Item SPV.0060.0916 246
177. Traffic Control Close-Open Freeway to Freeway System Ramp, Item SPV.0060.0917. 247
178. Traffic Control Full Freeway Closure, Item SPV.0060.0918. 247
179. Fixed Message Sign Portable Support Special, Item SPV.0060.0920. 247
180. Dynamic Speed Display Sign, Item SPV.0060.0930. 248
181. Moving Dynamic Speed Display Sign, Item SPV.0060.0935 249
182. Emergency Response to Traffic Incident Involving Concrete Barrier Temporary, Item SPV.0060.0940. 250
183. Emergency Response to Traffic Incident Involving Crash Cushion, Item SPV.0060.0945. 251
184. Temporary Concrete Barrier Gate 24-FT, Item SPV.0060.0950. 252
185. Install State Furnished Sign, Item SPV.0060.0955. 252
186. Poles Wood 60-FT, Item SPV.0060.1002. 253
187. Poles Wood 35-FT, Item SPV.0060.1003. 253
188. Wood Pole Lighting 60-FT, Item SPV.0060.1004. 254
189. Wood Pole Lighting 35-FT, Item SPV.0060.1005. 255
190. Concrete Bases Type B, Item SPV.0060.1006. 255
191. Concrete Bases Type C, Item SPV.0060.1007. 256
192. Luminaires Utility HPS 400 Watts Floodlight, Item SPV.0060.1008. 256
193. Luminaires Utility HPS 1000 Watts Floodlight, Item SPV.0060.1009. 257
194. Removing Electrical Service Meter Breaker Pedestal, Item SPV.0060.2000. 257
195. Removing Controller Cabinet, Item SPV.0060.2001. 258
196. Removing Controller Cabinet Base, Item SPV.0060.2002. 258
197. Removing Microwave Detector, Item SPV.0060.2003. 259
198. Removing Ramp Control Signal Assembly Sidemount, Item SPV.0060.2004. 259
199. Removing Ramp Control Signal Assembly Overhead, Item SPV.0060.2005 260
200. Removing Temporary Vehicle Detector Assembly, Item SPV.0060.2006. 261

201. Salvage Solar Powered HAR Sign Assembly, Item SPV.0060.2008. 262
202. Speed Warning Sign System, Item SPV.0060.2009. 263
203. Temporary Poles Wood 40-Foot, Item SPV.0060.2010; Temporary Poles Wood 60-Foot, Item SPV.0060.2011. 264
204. Temporary Vehicle Detector Assembly, Item SPV.0060.2012. 265
205. Ground Rod, Item SPV.0060.2013. 266
206. Relocating Temporary Vehicle Detector Assembly, Item SPV.0060.2014. 266
207. Refocus Vehicle Detector Assembly, Item SPV.0060.2015. 267
208. Remove Pole, Item SPV.0060.2016. 268
209. Install Temporary Traffic Camera Assembly, Item SPV.0060.2017. 268
210. Install Salvaged Solar Powered HAR Sign Assembly, Item SPV.0060.2018. 269
211. Remove Temporary Traffic Camera Assembly, Item SPV.0060.2019. 270
212. Signal Assembly Ramp Control Sidemount, Item SPV.0060.2020. 271
213. Signal Assembly Ramp Control Overhead, Item SPV.0060.2021. 272
214. Signal Assembly Advance Flasher Type 1, Item SPV.0060.2022. 273
215. Type 9 & 10 Special Traffic Signal Base, Item SPV.0060.3001. 274
216. Transport and Install Poles Type 9 Special, Item SPV.0060.3002; Transport and Install Poles Type 10, Item SPV.0060.3003; Transport and Install Poles Type 10 Special, Item SPV.0060.3004; Transport and Install Monotube Arms 15-FT, Item SPV.0060.3005; Transport and Install Monotube Arms 20-FT, Item SPV.0060.3006; Transport and Install Monotube Arms 25-FT, Item SPV.0060.3007; Transport and Install Monotube Arms 30-FT, Item SPV.0060.3008; Transport and Install Monotube Arms 35-FT, Item SPV.0060.3009; Transport and Install Monotube Arms 40-FT, Item SPV.0060.3010; Transport and Install Luminaire Arms Steel 8-FT, Item SPV.0060.3011; Transport and Install Luminaire Arms Steel 15-FT, Item SPV.0060.3012. 274
217. Covering Existing Traffic Signal Faces, Item SPV.0060.3013. 275
218. Removing Monotube Concrete Bases, Item SPV.0060.3101. 276
219. Traffic Signal Controller Programming, Item SPV.0060.3102. 277
220. EVP Detector Type I, Item SPV.0060.3103. 277
221. EVP Discriminator Type IV, Item SPV.0060.3104. 278
222. EVP Confirmation Light Assembly Type I, Item SPV.0060.3105. 279
223. Concrete Control Cabinet Bases Type 9 Special Super P, Item SPV.0060.3106. 279
224. Pile Dynamic Analyzer (PDA) Testing, Item SPV.0060.4008; Pile Dynamic Analyzer (PDA) Restrikes, Item SPV.0060.4028; CAse Pile Wave Analysis Program (CAP/WAP) Evaluation, Item SPV.0060.4048. 280
225. Bearing Pads Elastomeric Special Temporary, Item SPV.0060.4068. 282
226. Bearings High-Load Multi-Rotational Guided, Item SPV.0060.4080. 283
227. Bearings High-Load Multi-Rotational T-Guided UPRR, Item SPV.0060.4088; Bearings High-Load Multi-Rotational Non-Guided UPRR, Item SPV.0060.4108; Bearings High-Load Multi-Rotational L-Guided UPRR, Item SPV.0060.4128. 289
228. Thermal Integrity Profiler (TIP) Testing, Drilled Foundation Shaft 59.06-Inch, Item SPV.0060.4148; Thermal Integrity Profiler (TIP) Testing, Wall Secant Pile 59.06-Inch, Item SPV.0060.4168. 294
229. Crosshole Sonic Log (CSL) Testing, Drilled Foundation Shaft 59.06-Inch, Item SPV.0060.4171; Crosshole Sonic Log (CSL) Testing, Wall Secant Pile 59.06-Inch, Item SPV.0060.4172; Crosshole Sonic Log (CSL) Testing, Wall Tangent Pile 36-Inch, Item SPV.0060.4173. 297
230. Tieback Anchors, Item SPV.0060.4175; Tieback Anchors Performance Tests, SPV.0060.4180. 298

231. Pile Integrity Testing (PIT), Drilled Foundation Shaft 59.06-Inch, Item SPV.0060.4181; Pile Integrity Testing (PIT), Wall Secant Pile 59.06-Inch, Item SPV.0060.4182.....307
232. Anchor Assemblies Noise Barrier Structures, Item SPV.0060.4185. 309
233. Anchor Slab Inlet Cover Special, Item SPV.0060.4190. 309
234. Fire Hydrant Sign Mounting, Item SPV.0060.4195. 310
235. Sanitary Manhole Type A 48-Inch, Item SPV.0060.5100. 311
236. Sanitary Manhole Type A 60-Inch, Item SPV.0060.5101. 312
237. Sanitary Manhole Type D, Item SPV.0060.5102. 314
238. Abandoning Sanitary Manhole, Item SPV.0060.5103. 316
239. Adjusting Sanitary Manhole, Item SPV.0060.5104. 317
240. Adjusting Water Valve Boxes, Item SPV.0060.5200. 318
241. Permanent Connection to Existing 6-inch Water Main, Item SPV.0060.5210; Permanent Connection to Existing 8-inch Water Main, Item SPV.0060.5211; Permanent Connection to Existing 12-inch Water Main, Item SPV.0060.5212; Permanent Connection to Existing 16-inch Water Main, Item SPV.0060.5213; Permanent Connection to Existing 24-inch Water Main, Item SPV.0060.5214. 319
242. Hydrant Assembly, Item SPV.0060.5260.....320
243. Remove Hydrant, Item SPV.0060.5265. 323
244. Polyethylene Water Service 1.25-Inch Length 0’-15’, Item SPV.0060.5275; Polyethylene Water Service 1.25-Inch Length 15.1’-25’, Item SPV.0060.5276; Polyethylene Water Service 1.25-Inch Length 25.1’-45’, Item SPV.0060.5277; Polyethylene Water Service 1.5-Inch Length 15.1’-25’, Item SPV.0060.5278; Polyethylene Water Service 2-Inch Length 15.1’-25’, Item SPV.0060.5279. 324
245. Resilient Wedge Gate Valve 6-Inch, Item SPV.0060.5290; Resilient Wedge Gate Valve 8-Inch, Item SPV.0060.5291; Resilient Wedge Gate Valve 12-Inch, Item SPV.0060.5292; Butterfly Valve 16-Inch, Item SPV.0060.5293; Butterfly Valve 24-Inch, Item SPV.0060.5294. 325
246. Sign Support Special Mounting, SPV.0060.6001. 327
247. Inlet Covers Type 57, Item SPV.0060.8004.....327
248. Reconnect Storm Sewer Laterals, Item SPV.0060.8007. 328
249. Manhole 9-Foot Special, Item SPV.0060.8012; Manhole 10-Foot Special, Item SPV.0060.8013; Manhole 12-Foot Special, Item SPV.0060.8014. 328
250. Pipe Connection to Existing Structure, Item SPV.0060.8015. 329
251. Removing Bulkhead, Item SPV.0060.8018.....329
252. Fastening Sewer Access Covers, Item SPV.0060.8020.....330
253. Sawing Concrete Barrier, Item SPV.0060.8022. 330
254. Inlet Covers Type 27-M, Item SPV.0060.8050. 331
255. Removing Cover Plates Left In Place, Item SPV.0060.8065. 331
256. Storm Sewer Structure N2173, Item SPV.0060.8505. 332
257. Storm Sewer Structure N2211, Item SPV.0060.8507. 332
258. Pavement Cleanup Project 1060-33-84, Item SPV.0075.0601; Pavement Cleanup Project 1060-34-77, Item SPV.0075.0602. 333
259. Obstructions, Drilled Foundation Shaft, Item SPV.0075.4008; Obstructions, Wall Secant Pile, Item SPV.0075.4048; Obstructions, Wall Tangent Pile, Item SPV.0075.4050; Obstructions, Foundation Drilling, Item SPV.0075.4055. 334
260. Obstructions Trenchless Utility Construction, Item SPV.0075.5100. 335
261. Removing Concrete Barrier Precast, Item SPV.0090.0001. 337
262. Maintain and Remove Concrete Barrier Temporary Precast, Item SPV.0090.0002. 337

263. Removing Modular Block Retaining Wall, Item SPV.0090.0003. 338
264. Removing Partial Modular Block Retaining Wall, Item SPV.0090.0004. 338
265. Concrete Curb & Gutter 31-Inch Integral, Item SPV.0090.0101. 339
266. Concrete Gutter 42-Inch, Item SPV.0090.0102; Concrete Gutter 66-Inch, Item SPV.0090.0103. 339
267. Concrete Barrier Type S42C Special, Item SPV.0090.0105. 340
268. Galvanized Pipe Railing, Item SPV.0090.0110 340
269. Pipe Underdrain 6-Inch Special, Item SPV.0090.0126; Pipe Underdrain 10-Inch Special, Item SPV.0090.0127. 341
270. Heavy Duty Silt Fence, Item SPV.0090.0301. 341
271. Marking Contrast Epoxy 4-inch, Item SPV.0090.0400; Marking Contrast Epoxy 8-inch, Item SPV.0090.0401. 343
272. Remove Pavement Marking 12-Inch, Item SPV.0090.0405. 343
273. Remove Grooved in Pavement Marking Thermoplastic Stop Bar, Item SPV.0090.0410. 343
274. Remove Pavement Marking Grooved Contrast Tape 4-Inch, Items SPV.0090.0414; Remove Pavement Marking Grooved Contrast Tape 8-Inch, Item SPV.0090.0415. 344
275. Salvage Temporary Precast Concrete Barrier Left In Place, Item SPV.0090.0600. 344
276. Remove and Dispose of UPRR Track, Item SPV.0090.0800. 345
277. Construct 136LB ISHH CWR on Wood Ties, Item SPV.0090.0805. 346
278. Construct Double Inside Guard Rail, Item SPV.0090.0810. 347
279. Fence Temporary 6-Foot, Item SPV.0090.0900. 347
280. Glare Screens Temporary, Item SPV.0090.0910. 348
281. Concrete Barrier Temporary Precast Anchoring, Item SPV.0090.0920. 348
282. Concrete Barrier Temporary Precast Anchored on Bridge, Item SPV.0090.0925. 349
283. Cable Aerial Aluminum 6 AWG Triplex, Item SPV.0090.1001; Cable Aerial Aluminum 4 AWG Triplex, Item SPV.0090.1002; Cable Aerial Aluminum 2 AWG Triplex, Item SPV.0090.1003. 350
284. Piling Steel HP 14-Inch X 89 LB, Item SPV.0090.4008; Piling Steel HP 14-Inch X 117 LB, Item SPV.0090.4009. 351
285. Drilled Foundation Shaft 59.06-Inch, Item SPV.0090.4028. 352
286. Foundation Drilling, Item SPV.0090.4035. 364
287. Wall Secant Pile 59.06-Inch, Item SPV.0090.4048. 366
288. Wall Tangent Pile 36-Inch, Item SPV.0090.4050. 378
289. Handrail B-40-878, Item SPV.0090.4068; Handrail R-40-622, Item SPV.0090.4069; Handrail Temporary, SPV.0090.4088. 382
290. Fence Decorative Bridge, Item SPV.0090.4100; Fence Decorative Wall, Item SPV.0090.4105. 384
291. Removing Existing Steel Piling, Item SPV.0090.4200. 386
292. Removing Existing Timber Piling, Item SPV.0090.4205. 387
293. Removing Concrete Encased Duct Package, Item SPV.0090.5001. 387
294. Removing Concrete Encased 21-Inch Sewer, Item SPV.0090.5002. 388
295. Sanitary Sewer 8-Inch PVC, Item SPV.0090.5101; Sanitary Sewer 10-Inch PVC, Item SPV.0090.5102; Sanitary Sewer 21-Inch PVC, Item SPV.0090.5103. 389
296. Steel Casing w/ Sanitary Sewer 10-Inch PVC Carrier, Item SPV.0090.5104 390
297. Abandoning Sanitary Sewer 8-Inch, Item SPV. 0090.5105; Abandoning Sanitary Sewer 18-Inch, Item SPV. 0090.5106; Abandoning Sanitary Sewer 21-Inch, Item SPV. 0090.5107. 392

298. Ductile Iron (DI) AWWA C-151 Class 55 Water Main 6-Inch, Item SPV.0090.5225; Ductile Iron (DI) AWWA C-151 Class 55 Water Main 8-Inch, Item SPV.0090.5226; Ductile Iron (DI) AWWA C-151 Class 55 Water Main 12-Inch, Item SPV.0090.5227; Ductile Iron (DI) AWWA C-151 Class 55 Water Main 16-Inch, Item SPV.0090.5228; Ductile Iron (DI) AWWA C-151 Class 55 Water Main 24-Inch, Item SPV.0090.5229. 393

299. Removing Water Main, Item SPV.0090.5239. 397

300. Abandon Existing 6-Inch Water Main, Item SPV.0090.5250; Abandon Existing 8-Inch Water Main, Item SPV.0090.5251; Abandon Existing 12-Inch Water Main, Item SPV.0090.5252; Abandon Existing 16-Inch Water Main, Item SPV.0090.5253. 398

301. Pipe Underdrain Exploration, Item SPV.0090.8025; Storm Sewer Lateral Exploration, Item SPV.0090.8026. 399

302. Precast Trench Drain, Item SPV.0090.8031; Temporary Precast Trench Drain, Item SPV.0090.8036. 399

303. Survey Project 1060-33-84, Item SPV.0105.0604; Survey Project 1060-34-77, Item SPV.0105.0605. 400

304. Maintenance of Lighting Systems, Item SPV.0105.1001. 403

305. Lighting System Integrator, Item SPV.0105.1002. 405

306. Lighting System Survey, Item SPV.0105.1003. 406

307. Transport and Install State Furnished Traffic Signal Cabinet IH 41 SB On Ramp & W North Ave, Item SPV.0105.3001; Transport and Install State Furnished Traffic Signal Cabinet IH 41 NB On Ramp & W North Ave, Item SPV.0105.3002. 407

308. Transport and Install State Furnished Emergency Vehicle Preemption (EVP) Detector Heads with Confirmation Beacons IH 41 SB On Ramp & W North Ave, Item SPV.0105.3003; Transport and Install State Furnished Emergency Vehicle Preemption (EVP) Detector Heads with Confirmation Beacons IH 41 NB On Ramp & W North Ave, Item SPV.0105.3004. 407

309. Transport and Install State Furnished FO Cable Pigtail 8-CT IH 41 SB On Ramp & W North Ave, Item SPV.0105.3005; Transport and Install State Furnished FO Cable Pigtail 8-CT IH 41 NB On Ramp & W North Ave, Item SPV.0105.3006. 408

310. Transport and Install State Furnished Municipal Traffic Signal Cabinet W North Ave & N 116th St, Item SPV.0105.3101. 409

311. Video Vehicle Detection System W North Ave & N 116th St, Item SPV.0105.3102. 409

312. Trial Wall Panel Secant Pile 59.06-Inch, Item SPV.0105.4008. 417

313. Trial Wall Panel Tangent Pile 36-Inch, Item SPV.0105.4010. 418

314. Track, Shoring and Existing Structure Monitoring UPRR, Item SPV.0105.4015. 419

315. Control of Water, Item SPV.0105.5245. 421

316. Rectangular Rapid Flashing Beacon (RRFB) System Station 730+00 NOG Right, Item SPV.0105.6001; Rectangular Rapid Flashing Beacon (RRFB) System Station 734+00 NOB Right, Item SPV.0105.6002; Rectangular Rapid Flashing Beacon (RRFB) System Station 734+00 NOB Left, Item SPV.0105.6003; Rectangular Rapid Flashing Beacon (RRFB) System Station 726+00 NOB Right, Item SPV.0105.6004; Rectangular Rapid Flashing Beacon (RRFB) System Station 725+50 NOG Right, Item SPV.0105.6005; Rectangular Rapid Flashing Beacon (RRFB) System Station 725+50 NOG Left, Item SPV.0105.6006; Rectangular Rapid Flashing Beacon (RRFB) System Station 732+00 NOA Right, Item SPV.0105.6007; Rectangular Rapid Flashing Beacon (RRFB) System Station 732+00 NOA Left, Item SPV.0105.6008; Rectangular Rapid Flashing Beacon (RRFB) System Station 122+50 NO Right, Item SPV.0105.6009; Rectangular Rapid Flashing Beacon (RRFB) System Station 738+00 NOC Right, Item SPV.0105.6010; Rectangular Rapid Flashing Beacon (RRFB) System Station 738+00 NOC Left, Item SPV.0105.6011. 425

317. Chevron Solar Powered Sign System Assembly Ramp MA, Item SPV.0105.6020; Chevron Solar Powered Sign System Assembly Ramp NOB, Item SPV.0105.6021; Chevron Solar Powered Sign System Assembly Ramp NOG, Item SPV.0105.6022. 429

318. Control of Water Storm Sewer, Item SPV.0105.8098. 432

319. Timber Lagging, Item SPV.0110.4001. 436
320. Field Office Special, Item SPV.0135.0100. 437
321. Vibration Monitoring, Item SPV.0135.0601. 439
322. Temporary Wall Wire Faced Mechanically Stabilized Earth, Item SPV.0165.4005. 440
323. Prestressed Precast Concrete Wall Panel R-40-567, Item SPV.0165.4010. 448
324. Geocomposite Drain Board, Item SPV.0165.4015. 454
325. Concrete Staining Previously Constructed Structure, Item SPV.0165.4020. 455
326. Temporary Shoring Railroad Type A, Item SPV.0165.4028; Temporary Shoring Railroad Type B, Item SPV.0165.4048. 456
327. Temporary Shoring Railroad Type CP, Item SPV.0165.4060. 458
328. Precast Concrete Modular Retaining Wall, Item SPV.0165.4069; Precast Concrete Modular Wingwall, Item SPV.0165.4088. 459
329. Geocomposite Wall Drain, Item SPV.0165.4090. 465
330. Wall Concrete Panel Mechanically Stabilized Earth R-40-561, Item SPV.0165.4100; Wall Concrete Panel Mechanically Stabilized Earth R-40-564, Item SPV.0165.4101; Wall Concrete Panel Mechanically Stabilized Earth R-40-568, Item SPV.0165.4102; Wall Concrete Panel Mechanically Stabilized Earth R-40-569, Item SPV.0165.4103; Wall Concrete Panel Mechanically Stabilized Earth R-40-570, Item SPV.0165.4104; Wall Concrete Panel Mechanically Stabilized Earth R-40-572, Item SPV.0165.4105; Wall Concrete Panel Mechanically Stabilized Earth R-40-632, Item SPV.0165.4106; Wall Concrete Panel Mechanically Stabilized Earth R-40-635, Item SPV.0165.4107. 466
331. Concrete Pavement 12-Inch Special, Item SPV.0180.0101; Concrete Pavement HES 12-Inch Special, Item SPV.0180.0102. 475
332. Concrete Pavement 10-Inch Special, Item SPV.0180.0103. 477
333. Resin Binder High Friction Surface Treatment, Item SPV.0180.0105. 479
334. Pesticide Application, Item SPV.0180.0110. 483
335. Topsoil Special, Item SPV.0180.0301. 485
336. Soil Drying, Item SPV.0180.0601. 487
337. Concrete Pavement Repair Special, Item SPV.0180.0603. 489
338. Asphaltic Material Binder, Item SPV.0180.0604. 490
339. Membrane Waterproofing, Item SPV.0180.4008. 490
340. Asphalt Panels, Item SPV.0180.4048. 492
341. Fly Ash Stabilization, Item SPV.0195.0001. 493
342. Riprap Reach D Stone, Item SPV.0195.0002. 496
343. Excavation, Hauling, and Disposal of Low-Level Contaminated Soil, Item SPV.0195.0004. 496
344. Base Aggregate Dense 1 1/4-Inch Restoration, Item SPV.0195.0010. 499
345. Stone No. 2 Special, Item SPV.0195.0015. 500
346. HMA Longitudinal Joint Repair, Item SPV.0195.0020. 500
347. Soil Drying Agent, Item SPV.0195.0601. 501
348. Base Aggregate Open Graded Special, Item SPV.0195.4008. 503
349. Backfill Modular Retaining Wall, Item SPV.0195.4029. 504
350. Removing Wood Poles UPRR, Item SPV.0195.5001. 505

SPECIAL PROVISIONS

1. General.

Perform the work under this construction contract for Project 1060-33-84 Zoo IC, USH 45, Swan Blvd to Burleigh Street, USH 45, Milwaukee County, Wisconsin; Project 1060-34-77 Zoo IC, North Avenue, 118th Street to 116th Street, Local Street, Milwaukee County, Wisconsin; Project 1100-18-73, Zoo IC, Polymer Overlays, Zoo IC Mainline Bridges, Var Hwy, Milwaukee County, Wisconsin; and Project 1100-18-76, Zoo I/C Overpasses, Various Locations, Var Hwy, 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, 2020 Edition, as published by the department, and these special provisions.

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 (20191121)

Perform all Union Pacific Railroad Company (UPRR) work according to the following references, (adopted by the Union Pacific Engineering Department, latest edition, and in addition to the Special Provisions, Plans and Standard Specifications):

1. UPRR Standard Plans
2. UPRR General Conditions and Specifications
3. UPRR Guidelines
4. AREMA Manual for Railway Engineering

If there is a discrepancy or conflict between the referenced specifications and the special provisions or standard specifications regarding UPRR work, the stricter requirement between the two specifications governs.

2. General Information, Definitions, and Terms.

Supplement standard spec 101.2 with the following:

UPRR Union Pacific Railroad Company

Modify standard spec 101.3 with the following:

Roadbed The graded portion of a highway or track section, within top slopes and side slopes, prepared as a foundation for the pavement structure and shoulders, or track section.

Roadway The portion of a highway, or railway, within the limits of construction. A divided highway has two or more roadways.

Subgrade The top surface of a roadbed upon which the pavement structure and shoulders, or track section, are constructed.

Supplement standard spec 101.3 with the following:

Ballast The layer or layers of specified or selected material of designed thickness placed on subballast to support ties, rail and other track material.

Subballast The layer or layers of specified or selected material of designed thickness placed on a subgrade to support ballast, ties, rail and other track material.

Railway A private way for the purpose of train operations, including the entire area within the private right-of-way.

Track Section The combination of subballast, ballast, ties, rails and other track material placed on a subgrade to support the railroad load and distribute it to the roadbed.

UPRR Engineer The UPRR or the UPRR's authorized representative limited by the particular duties assigned to the representative.

3. 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, HMA pavement, storm sewer, erosion control, 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-40-138	B-40-793	B-40-859	B-40-874
B-40-777	B-40-794	B-40-860	B-40-875
B-40-778	B-40-795	B-40-861	B-40-876
B-40-781	B-40-796	B-40-863	B-40-877
B-40-782	B-40-797	B-40-864	B-40-878
B-40-788	B-40-798	B-40-869	B-40-879
B-40-789	B-40-799	B-40-870	B-40-882
B-40-790	B-40-849	B-40-871	B-40-883
B-40-791	B-40-851	B-40-872	B-40-891
B-40-792	B-40-857	B-40-873	

Noise Barriers

N-40-82	N-40-85
N-40-83	N-40-86
N-40-84	N-40-87

Retaining Walls

R-40-561	R-40-569	R-40-576	R-40-671
R-40-564	R-40-570	R-40-622	R-40-672
R-40-567	R-40-572	R-40-632	
R-40-568	R-40-573	R-40-635	

Sign Structures

S-40-67	S-40-75	S-40-784	S-40-967
S-40-69	S-40-77	S-40-785	S-40-968
S-40-70	S-40-145	S-40-786	S-40-969
S-40-71	S-40-442	S-40-798	S-40-970
S-40-73	S-40-783	S-40-799	S-40-972

104-005 (20090901)

4. Mandatory Pre-Bid Meeting.

Add the following to standard spec 102.3.1 as paragraph three:

(3) Prospective bidders are required to attend a virtual, mandatory pre-bid meeting on Tuesday, September 22, 2020 at 9:00 AM. The meeting link is shown below and will also be published on the HCCI website.

Meeting number: 146 651 7633

Password: sAxkCrst434

https://wisconsindot.webex.com/wisconsindot/j.php?MTID=mc07dd53393905b2db3524b9a688a5e9a

Join by phone

+1 408-418-9388

Access code: 146 651 7633

Contractors will be able to obtain a bidding proposal form and submit a bid on this proposal only if they have been documented as attending the mandatory pre-bid meeting."

The meeting agenda will include the following:

- Corridor Overview
- Zoo IC, USH 45, Swan Blvd to Burleigh Street, USH 45, Milwaukee County, Wisconsin; Zoo IC, North Avenue, 118th Street to 116th Street, Local Street, Milwaukee County, Wisconsin; Zoo IC, Polymer Overlays, Zoo IC Mainline Bridges, Var Hwy, Milwaukee County
- The meeting will discuss project specific issues for IDs 1060-33-84, 1060-34-77, 1100-18-73, and 1100-18-76.
- 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.

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5. 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.

The contract time for completion is based on an expedited work schedule and may require extraordinary forces and equipment; work on Saturdays and Sundays; and work at night.

Indicated 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.

Do not begin Stage 1A freeway work, or impact freeway lanes or shoulders prior to March 15, 2021, unless approved by the engineer.

Do not shift traffic into the Stage 2A configuration prior to March 15, 2022, unless approved by the engineer.

Do not shift traffic into the Stage 4 configuration prior to March 15, 2023, unless approved by the engineer.

A CPM Progress Schedule

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

B 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. 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 1060-33-84:

Stage 1A Construction:

Freeway and Ramp Construction

- Construct IH 41/USH 45 median improvements south of Underwood Parkway
- Construct IH 41/USH 45 median improvements South of UPRR
- Construct IH 41/USH 45 median improvements between UPRR and North Avenue
- Reconstruct Ramp BUC gore pavement to remove rumble strips
- Construct sanitary sewer under IH 41/USH 45
- Mill and Overlay IH 41/USH 45 SB lanes
- Repair pavement joints and base patch IH 41/USH 45 NB

Local Road Construction

- Construct sanitary sewer crossing of IH 41/USH 45 at 113th and 112th Streets

Stage 1B Construction:

Freeway and Ramp Construction

- Remove outside half of SB Mayfair Rd bridge B-40-136
- Construct IH 41/USH 45 median improvements at Meinecke Avenue
- Construct temporary pavement widening of SB IH 41/USH 45 from Swan BLVD to Mayfair Road bridge and Center Street to Burleigh Street
- Construct temporary shoofly structure median pier and begin temporary south abutment
- Begin shoofly track construction
- Begin construction of R-40-567
- Construct Meinecke Avenue bridge median pier (B-40-879)

Local Road Construction

- Construct utilities along 113th Street and 112th Street
- Remove Meinecke Avenue bridge over IH 41/USH 45 (B-40-259)

Stage 1C Construction:

Freeway and Ramp Construction

- Construct the outside half of SB Mayfair bridge (B-40-876)
- Construct temporary widening of B-40-138 (SB IH 41/USH 45 over North Avenue)
- Construct temporary pavement widening of SB IH 41/USH 45 from Mayfair Road to Center Street

- Construct permanent SB IH 41/USH 45 pavement at each end of B-40-876 construction
- Construct north median crossover
- Construct temporary shoofly structure south pier and barrier transition
- Construct temporary shoofly structure south abutment
- Construct temporary shoofly structure north abutment
- Construct temporary shoofly track
- Complete temporary shoofly structure and cut over the UPRR tracks
- Remove existing UPRR bridge superstructure over IH 41/USH 45
- Construct UPRR bridge B-40-878 south abutment
- Remove existing UPRR south abutment
- Construct Meinecke Avenue bridge (B-40-879)
- Construct retaining walls R-40-561/564/573/576
- Construct noise walls N-40-82/83/84/86

Local Road Construction

- Construct 113th Street Station 11+54.89 TA to Station 27+20.00TA
- Mill and overlay 113th Street pavement Station 27+20.00TA to Station 35+15.00TA
- Construct 112th Street pavement Station 17+34.35TB to Station 20+80.00TB
- Mill and overlay 112th Street pavement Station 20+80.00TB to Station 33+00.00TB
- Construct Meinecke Avenue pavement Station 16+65.00ME to Station 22+75.00ME

Stage 2A Construction:

Freeway and Ramp Construction

- Remove existing UPRR bridge median pier and footings
- Construct UPRR bridge (B-40-878) median pier
- Construct Ramp BUB temporary connection
- Begin IH 41/USH 45 Stage 2B Freeway and Ramp Construction

Local Road Construction

- Begin North Avenue – Stage 1A Construction

Stage 2B Construction:

Freeway and Ramp Construction

- Construct NB IH 41/USH 45 (except NB median shoulder North Avenue to Center Street)
- Remove NB bridge over Mayfair Road (B-40-135)
- Construct NB IH 41/USH 45 bridge over Mayfair Road (B-40-875)
- Construct Ramp MA bridge (B-40-877)
- Construct UPRR bridge B-40-878 and cut over UPRR track
- Remove temporary shoofly structure and track
- Construct IH 41/USH 45 bridge over North Avenue (B-40-794)

Local Road Construction

Mayfair Road

- Install storm sewer manhole in SB Mayfair Road

North Avenue – Stage 1A and North Avenue – Stage 1B

- Construct watermain along North Avenue
- Construct sanitary sewer crossing of North Avenue
- Construct North Avenue Station 100+03.25NO to Station 102+50.00NO
- Do not place surface layer of HMA pavement between Station 106+00NO and Station 116+00NO this stage
- Construct retaining wall R-40-569

Stage 3 Construction:

Freeway and Ramp Construction

- Construct NB median shoulders and barrier south of Mayfair Road bridge (B-40-875)
- Construct new pavement and SB median shoulders for south crossover
- Construct NB and SB IH 41/USH 45 median shoulder and barrier between North Avenue and the pedestrian bridge

Local Road Construction

- None

Stage 4 Construction:

Freeway and Ramp Construction

- Construct SB IH 41/USH 45
- Construct SB IH 41/USH 45 bridge over Mayfair Road (B-40-876 inside half)
- Construct SB IH 41/USH 45 bridges over North Avenue (B-40-792/793)
- Construct retaining walls R-40-572/635
- Complete retaining walls R-40-561/564/568/570/572/573
- Construct noise walls N-40-87/85

Local Road Construction

North Avenue – Stage 2B

- Complete construction of North Avenue Station 100+03.25NO to Station 102+50.00NO

North Avenue – Stage 2C

- Place HMA surface layer Station 106+00NO to Station 116+00NO

Stage 5 Construction:

Freeway and Ramp Construction

- IH 41/USH 45 median shoulder and barrier at crossovers
- Mill and Overlay IH 41/USH 45 at north project limits
- Complete pavement marking, signing, and restoration

Local Road Construction

- Construct Underwood Parkway at IH 41/USH 45

PROJECT 1100-18-73:

B-40-777:
Stage 1 Construction:

- Apply polymer overlay to B-40-777 bridge deck

B-40-778:
Stage 1 Construction:

- Apply polymer overlay to B-40-778 bridge deck

B-40-781:
Stage 1 Construction:

- Apply polymer overlay to B-40-781 bridge deck

B-40-782:
Stage 1 Construction:

- Apply polymer overlay to B-40-782 bridge deck

B-40-788/790/797:
Stage 1 Construction:

- Apply polymer overlay to the inside half of B-40-788/790/797 bridge decks

Stage 2 Construction:

- Apply polymer overlay to the outside half of B-40-788/790/797 bridge decks

B-40-789/791/798:
Stage 1 Construction:

- Apply polymer overlay to the inside half of B-40-789/791/798 bridge decks

Stage 2 Construction:

- Apply polymer overlay to the outside half of B-40-789/791/798 bridge decks

B-40-795/859:
Stage 1 Construction:

- Apply polymer overlay to B-40-798/859 bridge decks

B-40-796:
Stage 1 Construction:

- Apply polymer overlay to the outside half of B-40-796 bridge deck

Stage 2 Construction:

- Apply polymer overlay to the inside half of B-40-796 bridge deck

B-40-799/860:

Stage 1 Construction:

- Apply polymer overlay to B-40-799/860 bridge decks

B-40-849:

Stage 1 Construction:

- Apply polymer overlay to the inside half of B-40-849 bridge deck

Stage 2 Construction:

- Apply polymer overlay to the outside half of B-40-849 bridge deck

B-40-851/861:

Stage 1 Construction:

- Apply polymer overlay to B-40-851/861 bridge decks

B-40-857:

Stage 1 Construction:

- Apply polymer overlay to the inside half of B-40-857 bridge deck

Stage 2 Construction:

- Apply polymer overlay to the outside half of B-40-857 bridge deck

B-40-863:

Stage 1 Construction:

- Apply polymer overlay to the inside half of B-40-863 bridge deck

Stage 2 Construction:

- Apply polymer overlay to the outside half of B-40-863 bridge deck

B-40-864:

Stage 1 Construction:

- Apply polymer overlay to the outside half of B-40-864 bridge deck

Stage 2 Construction:

- Apply polymer overlay to the inside half of B-40-864 bridge deck

B-40-869:

Stage 1 Construction:

- Apply polymer overlay to the inside half of B-40-869 bridge deck

Stage 2 Construction:

- Apply polymer overlay to the outside half of B-40-869 bridge deck

B-40-870:

Stage 1 Construction:

- Apply polymer overlay to the inside half of B-40-870 bridge deck

Stage 2 Construction:

- Apply polymer overlay to the outside half of B-40-870 bridge deck

B-40-871/873:

Stage 1 Construction:

- Apply polymer overlay to the inside half of B-40-871/873 bridge deck

Stage 2 Construction:

- Apply polymer overlay to the outside half of B-40-871/873 bridge deck

B-40-872/874:

Stage 1 Construction:

- Apply polymer overlay to the outside half of B-40-872/874 bridge decks

Stage 2 Construction:

- Apply polymer overlay to the inside half of B-40-872/874 bridge decks

B-40-882:

Stage 1 Construction:

- Apply polymer overlay to the inside half of B-40-849 bridge deck

Stage 2 Construction:

- Apply polymer overlay to the outside half of B-40-849 bridge deck

B-40-883:

Stage 1 Construction:

- Apply polymer overlay to the inside half of B-40-883 bridge deck

Stage 2 Construction:

- Apply polymer overlay to the outside half of B-40-883 bridge deck

B-40-891:

Stage 1 Construction:

- Apply polymer overlay to B-40-891 bridge deck

PROJECT 1100-18-76:

B-40-769:

Stage 1 Construction:

- Apply polymer overlay to the WB directional half of B-40-769 bridge deck

Stage 2 Construction:

- Apply polymer overlay to the EB directional half of B-40-769 bridge deck

B-40-770:

Stage 1 Construction:

- Apply polymer overlay to the inside half of B-40-770 bridge deck

Stage 2 Construction:

- Apply polymer overlay to the outside half of B-40-770 bridge deck

B-40-771:

Stage 1 Construction:

- Apply polymer overlay to the inside half of B-40-771 bridge deck

Stage 2 Construction:

- Apply polymer overlay to the outside half of B-40-771 bridge deck

B-40-775:

Stage 1 Construction:

- Apply polymer overlay to B-40-775 bridge deck

B-40-785:

Stage 1 Construction:

- Apply polymer overlay to B-40-785 bridge deck

B-40-862:

Stage 1 Construction:

- Apply polymer overlay to B-40-862 bridge deck

B-40-866:

Stage 1 Construction:

- Apply polymer overlay to the WB directional half of B-40-866 bridge deck

Stage 2 Construction:

- Apply polymer overlay to the EB directional half of B-40-866 bridge deck

B-40-867:

Stage 1 Construction:

- Apply polymer overlay to B-40-867 bridge deck

B-40-880:

Stage 1 Construction:

- Apply polymer overlay to B-40-880 bridge deck

B-40-884:

Stage 1 Construction:

- Apply polymer overlay to B-40-884 bridge deck

B-67-344:

Stage 1 Construction:

- Apply polymer overlay to B-67-344 bridge deck

B-67-345:

Stage 1 Construction:

- Apply polymer overlay to B-67-345 bridge deck

C 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.

Obtain prior acceptance from the engineer and the SEF Construction WZ Engineer 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 North Avenue, 114th Street, 115th Street, and 116th Street five business days in advance of restricting access to their houses or business.

Notify the engineer, businesses and residents that live along Meinecke Avenue, Center Street, 113th Street, and 112th Street five business days in advance of restricting access to their houses or business.

Notify the engineer five business days in advance of restricting access to Wauwatosa West High School, and Whitman Middle School schools.

D 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.

E 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.

F 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 – 7:00 PM Monday, Tuesday, Wednesday, Thursday
- 5:30 AM – 11:00 PM Friday

Weekend Peak Hours

- 8:00 AM – 7:00 PM Saturday
- 8:00 AM – 7:00 PM Sunday

Weekday Off-Peak Hours

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

Weekend Off-Peak Hours

- 7:00 PM – 11:00 PM Saturday
- 7:00 PM – 9:30 PM Sunday

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) (All Segments)

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 – 6:00 AM (Friday PM to Saturday AM, Saturday PM to Sunday AM)

Service Ramp Closure Hours

- 9:00 PM – 6:00 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)
- 10:30 PM – 8:30 AM (Friday PM to Saturday AM, Saturday PM to Sunday AM)

Do not close freeway lanes or shoulders (including auxiliary lanes, system ramps, service ramps, and CD roadway system) and ensure that the freeways are entirely clear for traffic during Weekday Peak Hours and Weekend Peak Hours, except as shown in the traffic control plans. Provide a minimum of two lanes in each direction of the freeway that is entirely clear for traffic during Weekday Off-Peak Hours and Weekend Off-Peak Hours except as allowed during full closure. 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. Do not close System Ramps unless otherwise approved by the engineer for safety or operational reasons associated with other adjacent lane or freeway closures. Close service ramps only during Service Ramp Closure 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.

G Rolling Closure

Short term freeway mainline, system ramp, service ramp, and State Highway 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 AM and 4 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

H Closure Restrictions

H.1 General

Full closure and detouring of freeway roads will be restricted to Full Freeway and System Ramp 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, bridge deck polymer overlays, 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 freeway closures for girder erection, bridge demolition, and temporary storm sewer construction, the contractor is allowed extended full freeway 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 freeway closure is defined as one direction of the freeway. Closing both directions of the freeway constitutes using two full freeway closures. A total of eight extended full freeway closures are

allowed. Bridge superstructure demolition activities will require a full freeway closure in both directions. These closures are to be utilized only for bridge demolition, girder erection, and temporary storm sewer construction for the following locations:

- UPRR Temporary Shoofly Structure girder placement
- Meinecke Avenue bridge demolition and construction
- IH 41/USH 45 SB temporary storm sewer

Submit requests for extended hour closures 14 calendar days prior to the planned closure events. Submit requests for closures beyond extended hours up to 20 hours 30 calendar days prior to the closure event. For closures greater than 20 hours, submit requests 45 calendar days prior to the planned closure event. Submit requests for long-term lane closures on I-41/USH 45 shown in Stage 1C – Substage 1, Stage 1C – Substage 2, and Stage 2 of the plans 30 days prior to lane closure. Obtain prior approval from the engineer and the SEF Construction WZ Engineer, (414) 750-1397, for said closures.

For 1100-18-73 and 1100-18-76 bridge polymer overlay work, the contractor is to follow the same closure restrictions defined for project 1060-33-84. These closures are to be utilized only for bridge polymer overlay activities in the locations of Contracts 1100-18-73 and 100-18-76.

Submit requests for extended night time closure hours 14 calendar days prior to the planned closure events. Obtain prior approval from the engineer and the SEF Construction WZ Engineer, (414) 750-1397, for said closures. Notify local emergency and police agencies 7 calendar days prior to closures.

UPRR bridge over IH 41/USH 45 demolition is allowed a onetime only continuous closure of NB and SB IH 41/USH 45 within the weekend timeframe of 11:00 PM Friday night to 5:00 AM Monday morning.

UPRR temporary shoofly structure over IH 41/USH 45 demolition is allowed a onetime only continuous closure of NB and SB IH 41/USH 45 within the weekend timeframe of 11:00 PM Friday night to 5:00 AM Sunday morning.

UPRR bridge over IH 41/USH 45 girder placement operations is allowed a onetime only continuous closure of NB and SB IH 41/USH 45 within the weekend timeframe of 11:00 PM Friday night to 5:00 AM Monday morning.

H.2 Freeway Lane Restrictions

Do not restrict lanes on IH 41/USH 45 within the project limits when there is a full closure on WIS 100/Mayfair Road, unless approved by the engineer.

Do not begin the construction of the UPRR temporary shoofly structure south pier prior to the construction of the UPRR temporary shoofly structure median pier and traffic is switched onto the inside shoulder pavement as shown in Stage 1C or as approved by the engineer.

Do not begin construction on the temporary widening of the SB IH 41/USH 45 bridge B-40-138 over North Avenue prior to the construction of the median pavement and traffic switched as shown in Stage 1C or as approved by the engineer.

Do not begin the construction of the Meinecke Avenue bridge B-40-879 west pier prior to the construction of the Meinecke Avenue bridge B-40-879 median pier and traffic is switched onto the inside shoulder pavement as shown in Stage 1C or as approved by the engineer.

Do not begin construction on the IH 41/USH 45 north median crossover prior to the construction of the SB IH 41/USH 45 and Ramp BUC temporary pavement widening and traffic switched as shown in Stage 1C or as approved by the engineer.

Do not begin demolition of the existing UPRR bridge over IH 41/USH 45 prior to the completion of the UPRR temporary shoofly structure, shoofly track, and the temporary track activated, as work accepted by the UPRR or as approved by the engineer.

Do not remove the existing UPRR median bridge pier prior to IH 41/USH 45 traffic is placed in the Stage 2A configuration, or as approved by the engineer.

Nighttime work on Zoo Interchange System Ramps NE and Ramp NW will not be allowed at the same time as full closures of IH 41 southbound between Burleigh Street and Watertown Plank Road, unless approved by the engineer.

Do not place permanent pavement markings on freeway, system ramps, or service ramps prior to March 15, 2023, unless otherwise approved by the engineer.

H.3 Long Term Closure Restrictions

Do not close NB IH 41/USH 45 exit to Mayfair Road (Ramp MA) between November 15 and January 2, or as approved by the engineer.

One lane of IH 41/USH 45 SB may be closed for a onetime only period not to exceed 28 consecutive calendar days for temporary shoofly structure pier and concrete barrier construction as shown in Stage 1C (Substage 1) of the plans.

One lane of IH 41/USH 45 NB may be closed for a onetime only period not to exceed 35 consecutive calendar days for temporary shoofly structure north abutment construction as shown in Stage 1C (Substage 2) of the plans.

One lane of IH 41/USH 45 NB may be closed for a onetime only period not to exceed 42 consecutive calendar days for existing UPRR median pier and footing removal, and new UPRR median pier construction as shown in Stage 2A of the plans.

Coordinate with adjacent project 1100-01-07/77 (I-41, Burleigh to Good Hope Rd) to allow that project to extend the Stage 1C – Substage 1 and Stage 1C – Substage 2 IH 41/USH 45 lane closures from Burleigh Street to Capitol Drive.

System ramp from IH 94 EB to IH 41/IH 894 SB (WS Ramp) may be closed for a onetime only period not to exceed 21 consecutive calendar days between August 16, 2021 and October 14, 2021 for roadway construction operations as shown in the plans.

STH 100/Mayfair Road service ramp from IH 94 WB entrance ramp to IH 94 EB/IH 41 (Ramp SL) may be closed for a onetime only period not to exceed 9 consecutive calendar days beginning a Friday night for roadway construction operations as shown in the plans. IH 94 WB entrance ramp from STH 100/Mayfair Road must remain open

H.4 Service Ramp Closure Restrictions

Do not close the NB IH 41/USH 45 entrance ramps from Watertown Plank Road unless otherwise approved by the engineer for overnight full freeway closures, lane closures, or extended weekend closures.

Do not close NB IH 41/USH 45 exit ramp to WB North Avenue (Ramp NOB) prior to IH 41/USH 45 Stage 1C, unless Ramp NOB is used for construction access or construction operations prior to Stage 1C, then it may be closed, oras directed by the engineer. Once Ramp NOB is closed, it shall remain closed until IH 41/USH 45 Stage 5.

Do not close NB IH 41/USH 45 exit ramp to Burleigh Street (Ramp BUB) except as shown in the plans, or as approved by the engineer.

NB IH 41/USH 45 exit ramp to Burleigh Street (Ramp BUB) may be closed for a onetime only period not to exceed 21 consecutive calendar days to construct the temporary ramp connection as shown in Stage 2A of the plans.

Do not close SB IH 41/USH 45 entrance ramp from Burleigh Street (Ramp BUC) except as shown in the plans, or as approved by the engineer.

Full closure of Ramp WF will not be allowed at the same time as full closures of IH 41 northbound between Watertown Plank Road and Burleigh Street.

Full closure of Ramp WH will not be allowed at the same time as full closures of IH 41 southbound between Burleigh Street and Watertown Plank Road.

H.5 Local Street Work Restriction

H.5.1 Definitions

The following definitions apply to this contract for WIS 100/Mayfair Road closure restrictions:

Single Lane Closure

Mon-Thur PM:	8:00 PM – 6:00 AM
Fri PM:	9:00 PM – 11:00 AM
Sat PM:	9:00 PM – 11:00 AM
Sun PM:	9:00 PM – 6:00 AM

Full Closure

Mon-Thur PM:	9:00 PM – 5:00 AM
Fri PM:	10:00 PM – 8:00 AM
Sat PM:	10:00 PM – 8:00 AM
Sun PM:	10:00 PM – 5:00 AM

The following definitions apply to this contract for local street closure restrictions except for WIS 100/Mayfair Road:

Peak Hours

6:00 AM – 9:00 AM	Monday, Tuesday, Wednesday, Thursday, Friday
3:00 PM – 7:00 PM	Monday, Tuesday, Wednesday, Thursday, 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

Full Closure

Mon-Thur PM	9:00 PM – 5:00 AM
Fri PM	10:00 PM – 8:00 AM
Sat PM	10:00 PM – 8:00 AM
Sun PM	10:00 PM – 5:00 AM

H.5.2 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.

H.5.3 North Avenue

Do not begin demolition of existing NB IH 41/USH 45 bridge over North Avenue, construction of B-40-794, retaining wall R-40-569, and North Avenue prior to the full closure of North Avenue and detour in place as shown in North Avenue Stage 1A during IH 41/USH 45 Stage 2, or as approved by the engineer.

Maintain two lanes in each direction on North Avenue prior to the full closure of North Avenue during IH 41/USH 45 Stage 2, unless otherwise shown in the traffic control plans, or as approved by the engineer.

Maintain one lane EB and two lanes WB on North Avenue after the full closure of North Avenue during IH 41/USH 45 Stage 2, unless otherwise shown in the traffic control plans, or as approved by the engineer.

North Avenue may be reduced to one lane EB and one lane WB for a onetime only period not to exceed 60 consecutive calendar days prior to September 3, 2021 for SB IH 41/USH 45 over North Avenue bridge temporary widening construction operations as shown in IH 41/USH 45 Stage 1C of the plans.

Do not construct the sanitary sewer crossing of North Avenue until after relocating 72” storm sewer pipe during North Avenue – Stage 1A/1B.

Maintain access to the driveway for Denny’s and the Reserve at Mayfair properties.

Maintain the WB left turn lane into the driveway for Denny’s and the Reserve at Mayfair properties during North Avenue Stage 2A.

H.5.4 112th Street

Maintain one lane of traffic in each direction on 112th Street between Clarke Street and Center Street, or as approved by the engineer.

H.5.5 113th Street

113th Street may be closed for a length of 325’ south of Meinecke Avenue as shown in Stage 1A of the plans for a onetime only period not to exceed 42 calendar days to facilitate construction of sanitary sewer.

Maintain one lane of traffic on 113th Street, except for the closure south of Meinecke for sanitary sewer construction as shown in Stage 1A of the plans, or as approved by the engineer.

Do not construct R-40-573 until sanitary sewer and watermain along 113th Street are constructed and accepted as complete, as approved by the engineer.

Do not perform work on the west side of 113th Street for utilities or other operations and on the east side of 113th Street for retaining wall or noise wall construction at the same time, unless as approved by the engineer.

H.5.6 116th Street

Do not perform work on 116th Street or at the intersection of 116th Street and North Avenue until after June 15, 2022 when area schools have begun summer break.

H.5.7 WIS 100/Mayfair Road

Maintain two lanes southbound and two lanes northbound on WIS 100/Mayfair Road at IH 41/USH 45 bridges unless shown otherwise in the traffic control plans or approved by the engineer.

Maintain three lanes on WIS 100/ Mayfair Road SB when IH 41/USH 45 SB has a long-term lane closure for work at the UPRR during Stage 1C.

Maintain three lanes on WIS 100/ Mayfair Road SB when IH 41/USH 45 SB has extended weekend closures.

Closure of any lane of WIS 100/Mayfair Road will be restricted to Single Lane Closure Hours unless otherwise specified. Reducing WIS 100/Mayfair Road to one lane in either direction is considered a single lane closure.

Full closure of WIS 100/Mayfair Road will be restricted to Full Closure Hours unless otherwise specified. Closing all lanes in one direction of WIS 100/Mayfair Road is considered a full closure.

Construction of the storm sewer structure in the center lane of SB WIS 100/Mayfair Road as shown in IH 41/USH 45 Stage 2B is allowed a onetime only closure of SB WIS 100/Mayfair Road within the weekend timeframe of 11:00 PM Friday night to 5:00 AM Monday morning. Do not close SB WIS 100/Mayfair Road for this extended closure when North Avenue is closed.

I 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 standard spec 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 except where appropriate acceleration and deceleration lanes and traffic control provided, as approved by the engineer. 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

J General

Provide Milwaukee County Transit System - Coordinator of Street Supervision, Melanie Flynn, (414) 343-1764, with a schedule of any closures that effect any MCTS route and/or stop 14 calendar days prior to closure. Coordinate the location and signing of each Temporary Bus Stop Pad with Andy Tillman, (414) 343-1728 14 calendar days prior to installation. Coordinate signing of each ADA Bus Stop with Andy Tillman, 14 calendar days prior to opening of bus stop.

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 Pedestrian Surface Asphalt, 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.

K 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, the City of Milwaukee Police Department, the City of Wauwatosa Police Department, the Village of Elm Grove Police Department, the City of Brookfield Police Department, and Milwaukee County Sheriff's Department with a 24-hour emergency contact number for when maintenance is required.

Replace standard spec 108.10.2.2(2) with the following:

Include requests for severe weather delays in the Monthly CPM Progress Schedule Updates. Indicate the number of adverse weather days that occurred during that month. Provide CPM progress schedule documentation as required under Section 108.4.7 of the Baseline CPM Progress Schedule/Monthly CPM Progress Schedule Updates special provision to show that the controlling item of work was delayed. Show that the delay was beyond the control of the contractor. The engineer will assess the contractor's submittal and indicate how many adverse weather days are confirmed.

Replace standard spec 108.10.2.2(3) with the following:

For each calendar month, the engineer will grant a severe weather day for each confirmed adverse weather day that exceeds the number of anticipated adverse weather days 108.10.2.2(1) shows. When the contractor requests severe weather days, the engineer will give the contractor a monthly written statement showing the number of days credited for severe weather. The engineer will only extend time for interim and contract completion dates for severe weather days that have been validated through an accepted CPM Progress Schedule Update.

L Interim and Final Completion of Work

L.1 Interim Completion of Work 113th Street closure for sanitary sewer

Supplement standard spec 108.11 as follows:

If the contractor fails to complete all backfilling, grading, and roadway restoration, as shown in Stage 1A to restore traffic on 113th Street south of Meinecke within 42 calendar days of the closure date, the department will assess the contractor $500.00 in interim liquidated damages for each calendar day that 113th Street 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 113th Street south of Meinecke is not open to at least one lane beyond 12:01 AM, on the 43rd day.

L.2 Interim Completion of Work SB IH 41/USH 45 Lane Reduction to construct Temporary Shoofly Structure Pier and barrier transition

Supplement standard spec 108.11 as follows:

If the contractor fails to complete all south pier construction, barrier transition construction, backfilling, and roadway restoration, as shown in Stage 1C Substage 1 to restore IH 41/USH 45 to three lanes southbound within 28 calendar days of the closure date, the department will assess the contractor $50,000.00 in interim liquidated damages for each calendar day that SB IH 41/USH 45 is not open to three lanes 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 SB IH 41/USH 45 is not open to at least three lanes beyond 12:01 AM, on the 29th day.

L.3 Interim Completion of Work NB IH 41/USH 45 Lane Reduction to construct Temporary Shoofly Structure north abutment

Supplement standard spec 108.11 as follows:

If the contractor fails to complete all north abutment construction, backfilling, and roadway restoration, as shown in Stage 1C Substage 2 to restore IH 41/USH 45 to three lanes northbound within 35 calendar days of the closure date, the department will assess the contractor $50,000.00 in interim liquidated damages for each calendar day that NB IH 41/USH 45 is not open to three lanes after 12:01 AM, on the 36th calendar day after the closure begins. An entire calendar day will be charged for any period of time within a calendar day that NB IH 41/USH 45 is not open to at least three lanes beyond 12:01 AM, on the 36th day.

L.4 Interim Completion of Work NB IH 41/USH 45 Lane Reduction to remove UPRR median pier and footings and construct B-40-878 median pier

Supplement standard spec 108.11 as follows:

If the contractor fails to complete all UPRR median pier and footings removal, construct new B-40-878 median pier, backfilling, and IH 41/USH 45 roadway restoration, as shown in Stage 2A to restore IH 41/USH 45 to three lanes northbound within 42 calendar days of the closure date, the department will assess the contractor $50,000.00 in interim liquidated damages for each calendar day that NB IH 41/USH 45 is not open to three lanes 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 NB IH 41/USH 45 is not open to at least three lanes beyond 12:01 AM, on the 43rd day.

L.5 Interim Completion of Work system ramp from IH 94 EB to IH 41/IH 894 SB (WS Ramp)

Supplement standard spec 108.11 as follows:

If the contractor fails to complete all concrete pavement, roadway restoration, and other work shown in the plans to restore WS Ramp to all lanes within 21 calendar days of the closure date, the department will assess the contractor $6,000.00 in interim liquidated damages for each calendar day that all lanes of WS Ramp are not open 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 all lanes of WS Ramp are not open beyond 12:01 AM, on the 22nd day.

L.6 Interim Completion of Work service ramp from STH 100 / Mayfair Road to IH 94 EB / IH 41 (Ramp SL)

Supplement standard spec 108.11 as follows.

If the contractor fails to complete all concrete pavement, roadway restoration, and other work shown in the plans to restore Ramp SL to all lanes within 9 calendar days of the closure date, the department will assess the contractor $3.5000.00 in interim liquidated damages for each calendar day that all lanes of Ramp SL are not open after 12:01 AM, on the 10th calendar day after the closure begins. An entire calendar day will be charged for any period of time within a calendar day that all lanes of Ramp SL are not open beyond 12:01 AM, on the 10th day.

L.7 Interim Completion of Work September 2, 2021

Supplement standard spec 108.11 as follows.

If the contractor fails to complete SB IH 41/USH 45 over North Avenue bridge widening to open North Avenue to two lanes in each direction prior to 12:01 AM on September 3, 2021, the department will assess the contractor $10,000.00 in interim liquidated damages per day for each calendar day after 12:01 AM on September 3, 2021, that North Avenue is not open to two lanes of vehicular traffic in each direction. An entire calendar day will be charged for any period of time within a calendar day that North Avenue is not open to two lanes in each direction beyond 12:01 AM, on September 3, 2021.

L.8 Interim Completion of Work September 17, 2021

Supplement standard spec108.11 as follows:

If the contractor fails to complete all of the work necessary to make the UPRR track connection between the existing track and the shoofly, and to move UPRR traffic to the temporary crossing of IH 41/USH 45 as shown in Stage 1C of the traffic control plans including:

- Temporary shoofly structure
- Temporary shoofly track on grade and across the temporary shoofly structure
- Coordination with UPRR for UPRR to throw tracks from existing to temporary shoofly

prior to 12:01 AM on September 18, 2021, the department will assess the contractor $5,000.00 in interim liquidated damages per day for each calendar day after 12:01 AM on September 18, 2021. An entire calendar day will be charged for any period of time within a calendar day that the track remains unavailable to carry trains beyond 12:01 AM on September 18, 2021.

L.9 Interim Completion of Work 5:00 AM November 8, 2021

Supplement standard spec 108.11 as follows.

If the contractor fails to complete all work necessary to open Meinecke Avenue, 112th Street and 113th Street to traffic, including bridge B-40-879, retaining walls R-40-573 and 576, noise walls N-40-82/83/84/86, HMA pavement, storm sewer, utilities, concrete curb and gutter, pavement marking, signing, sidewalk, and restoration work prior to 5:00 AM on November 8, 2021, the department will assess the contractor $500.00 in interim liquidated damages per day for each calendar day after 5:00 AM on November 8, 2021 that Meinecke Avenue, 112th Street and 113th Street are not open to vehicular traffic. An entire calendar day will be charged for any period of time within a calendar day that Meinecke Avenue, 112th Street, or 113th Street remain closed beyond 5:00 AM, on November 8, 2021.

L.10 Interim Completion of Work July 31, 2022

Supplement standard spec108.11 as follows:

If the contractor fails to complete all of the work necessary to make the UPRR track connection between the shoofly track and the permanent track, and to move UPRR traffic to bridge B-40-878 over IH 41/USH 45 including:

- Complete Bridge B-40-878
- Retaining wall R-40-622
- Track on grade and across B-40-878
- Coordination with UPRR for UPRR to throw tracks from temporary shoofly to final permanent

prior to 12:01 AM on August 1, 2022, the department will assess the contractor $5,000.00 in interim liquidated damages per day for each calendar day after 12:01 AM on August 1, 2022. An entire calendar day will be charged for any period of time within a calendar day that the track across B-40-878 remains unavailable to carry trains beyond 12:01 AM on August 1, 2022.

L.11 Interim Completion of Work September 1, 2022

Supplement standard spec 108.11 as follows:

If the contractor fails to complete HMA paving (except surface layer), concrete curb and gutter, pavement marking, signing, sidewalk and restoration work on North Avenue between 116th Street and Mayfair Road as shown in Stages 1A and 1B of the North Avenue staging plans, prior to 12:01 AM on September 2, 2022, the department will assess the contractor $10,000.00 in interim liquidated damages per day for each calendar day after 12:01 AM on September 2, 2022, that North Avenue is not open to two lanes of vehicular traffic in each direction. An entire calendar day will be charged for any period of time within a calendar day that North Avenue remains closed beyond 12:01 AM, on September 2, 2022.

L.12 Interim Completion of Work 5:00 AM September 2, 2022

Supplement standard spec 108.11 as follows.

If the contractor fails to complete all Project 1100-18-73 work necessary to open all lanes on bridges within the project limits to traffic including polymer overlay and pavement markings as shown in the plans, prior to 5:00 AM on September 2, 2022, the department will assess the contractor $1,000.00 in interim liquidated damages per day for each calendar day after 5:00 AM on September 2, 2022, that any lanes on bridges within the project limits are closed to traffic for polymer overlay work operations. An entire calendar day will be charged for any period of time within a calendar day that any lanes on bridges within the project limits are closed to traffic for polymer overlay work operations beyond 5:00 AM on September 2, 2022.

L.13 Interim Completion of Work 5:00 AM September 2, 2022

Supplement standard spec 108.11 as follows.

If the contractor fails to complete all Project 1100-18-76 work necessary to open all lanes on bridges within the project limits to traffic including polymer overlay and pavement markings as shown in the plans, prior to 5:00 AM on September 2, 2022, the department will assess the contractor $1,000.00 in interim liquidated damages per day for each calendar day after 5:00 AM on September 2, 2022, that any lanes on bridges within the project limits are closed to traffic for polymer overlay work operations. An entire calendar day will be charged for any period of time within a calendar day that any lanes on bridges within the project limits are closed to traffic for polymer overlay work operations beyond 5:00 AM on September 2, 2022.

L.14 Interim Completion of Work November 15, 2022

Supplement standard spec 108.11 as follows.

If the contractor fails to complete all work necessary to get traffic into the Stage 3 traffic configuration including concrete paving, Structure B-40-877, concrete barrier, pavement marking, signing, sidewalk and restoration work on Ramp MA as shown in Stage 2 of the staging plans, prior to 12:01 AM on November 16, 2022, the department will assess the contractor $2,500.00 in interim liquidated damages per day for each calendar day after 12:01 AM on November 16, 2022, that traffic is not in the Stage 3 configuration and Ramp MA is not open for NB IH 41/USH 45 traffic to access NB Mayfair Road. An entire calendar day will be charged for any period of time within a calendar day that traffic is not in the Stage 3 configuration and the ramp remains closed beyond 12:01 AM, on November 16, 2022.

L.15 Interim Completion of Work 5:00 AM October 2, 2023

Supplement standard spec 108.11 as follows.

If the contractor fails to complete all work necessary to open all roadways to traffic, including all lanes of IH 41/USH 45, all ramps, WIS 100/Mayfair Road, local roads, and permanent signing, prior to 5:00 AM on October 2, 2023, the department will assess the contractor $25,000.00 in interim liquidated damages per day for each calendar day after 5:00 AM on October 2, 2023, that all roadways are not open to traffic, including all lanes of IH 41/USH 45, all ramps, WIS 100/Mayfair Road, local roads, and permanent signing. An entire calendar day will be charged for any period of time within a calendar day that any roadway or lane remains closed beyond 5:00 AM, on October 2, 2023.

M Maintenance

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.

N 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 and Wauwatosa 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.

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O 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 and Removing Old Structure Over Waterway with Debris Capture System.

P Northern Long-eared Bat (*Myotis septentrionalis*)

Northern Long-eared Bats (NLEB) have the potential to inhabit the project limits because they roost in trees. Roosts have been identified within 150 feet of the project limits. The species and all active roosts are protected by the Federal Endangered Species Act. If an individual bat or active roost is encountered during construction operations, stop work and notify the engineer and the WisDOT Regional Environmental Coordinator (REC).

To avoid adverse impacts upon the NLEBs, no Clearing is allowed between June 1 and July 31, both dates inclusive.

If the required Clearing is not completed by May 31, the department will suspend all clearing and associated work directly impacted by Clearing. The department will issue a notice to proceed with Clearing and associated work directly impacted by clearing after consulting with the United States Fish and Wildlife Service (USFWS).

Submit a schedule and description of Clearing operations with the ECIP 14 days prior to any Clearing operations. The department will determine, based on schedule and scope of work, what additional erosion control measures shall be implemented prior to the start of Clearing operations, and list those additional measures in the ECIP.

R Railroad Construction Coordination

The construction of track has 5 phases. The construction is further defined in Article 4, section A.2. of these special provisions.

The first phase consists of the contractor building shoofly tracks and the shoofly bridge. The contractor will notify the railroad 90 days in advance of completing phase one to allow railroad crews to mobilize for their work.

The second phase consists of the railroad taking the track out of service and throwing the track to the shoofly track built by the contractor in phase three. it is anticipated this work will take 2 days to complete.

The third phase consists of the contractor building the main track and bridge on the final alignment. The contractor shall notify the railroad 90 days in advance of completing phase one to allow railroad crews to mobilize for their work.

The fourth phase consists of the railroad taking the track out of service and throwing the track back to the permanent tracks built by the contractor in phase three. it is anticipated this work will take 2 days to complete.

The fifth phase consists of the contractor removing the shoofly track, bridge and embankment.

6. Lane Rental Fee Assessment.

A General

The contract designates some lane closures to perform the work. The contractor will not incur a Lane Rental Fee Assessment for closing lanes during the allowable lane closure times. The contractor will incur a Lane Rental Fee Assessment for each lane closure outside of the allowable lane closure times. If a lane is obstructed at any time due to contractor operations, it is considered a closure. The purpose of lane rental is to enforce compliance of lane restrictions and discourage unnecessary closures.

The allowable lane closure times are shown in the Traffic article.

Submit the dates of the proposed lane, ramp, and roadway restrictions to the engineer as part of the progress schedule.

Coordinate lane, ramp, and roadway closures with any concurrent operations on adjacent roadways within 3 miles of the project. If other projects are in the vicinity of this project, coordinate lane closures to run concurrent with lane closures on adjacent projects when possible. When lane closures on adjacent projects extend into the limits of this project, Lane Rental Fee Assessments will only occur if the closure facilitates work under this contract.

B Lane Rental Fee Assessment

The Lane Rental Fee Assessment incurred for each lane closure, each ramp closure, and each full closure of a roadway, per direction of travel, is as follows:

IH 41 Night Time Lane Closure Extending into Weekday Peak Hours

- 3 lanes to 2 lanes: $10,000 per lane, per direction of travel, per hour broken into 15 minute increments
- 2 lanes to 1 lane: $15,000 per lane, per direction of travel, per hour broken into 15 minute increments

IH 41 Night Time Lane Closure Extending into Weekend Peak Hours

- $6,000 per lane, per direction of travel, per hour broken into 15 minute increments

STH 100 Night Time Lane Closure Extending outside Single Lane Closure Hours

- $2,000 per lane, per direction of travel, per hour broken into 15 minute increments

Local Road Night Time Lane/Full Closure Extending into Peak Hours

- $1,000 per lane, per direction of travel, per hour broken into 15 minute increments

IH-94/IH-41 System Ramp

- $10,000 per lane, per direction of travel, per hour broken into 15 minute increments

IH 41 Service Ramp

- $4,000 per lane, per direction of travel, per hour broken into 15 minute increments

IH 41 Full Freeway Closure

- 4:30 AM to 5:30 AM: $2,500 per lane, per direction of travel, per hour broken into 15 minute increments

- After 5:30 AM: $10,000 per lane, per direction of travel, per hour broken into 15 minute increments

STH 100 Full Closure extending outside STH 100 Full Closure Hours

- $2,000 per lane, per direction of travel, per hour broken into 15 minute increments

Local Road Full Closure extending outside Local Road Full Closure Hours

- $1,000 per lane, per direction of travel, per hour broken into 15 minute increments

The Lane Rental Fee Assessment represents a portion of the cost of the interference and inconvenience to the road users for each closure. All lane, roadway, or ramp closure event increments 15 minutes and less will be assessed as a 15-minute increment.

The engineer, or designated representative, will be the sole authority in determining time period length for the Lane Rental Fee Assessment.

Lane Rental Fee Assessments will not be assessed for closures due to crashes, accidents or emergencies not initiated by the contractor.

The department will assess Lane Rental Fee Assessment by the dollar under the administrative item Failing to Open Road to Traffic. The total dollar amount of Lane Rental Fee Assessment will be computed by multiplying the Lane Rental Assessment Rate by the number of 15-minute increments of each lane closure event as described above.

Lane Rental Fee Assessment will be in effect from the time of the Notice to Proceed until the department issues final acceptance. If interim completion time or contract time expires before the completion of specified work in the contract, additional liquidated damages will be assessed as specified in standard spec 108.11 or as specified within this contract.

stp-108-070 (20161130)

7. Traffic.

A General

Keep IH 41, USH 45, IH 94, IH 894, 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.

Crossing of the UPRR tracks at W. Walnut Road is prohibited.

B Residential and Business Property Access

Maintain access to properties along Mayfair Road, North Avenue, 112th Street, 113th Street, 116th Street, and all adjacent side streets, 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.

C 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 Pedestrian Surface Asphalt 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, construction debris, and construction equipment. Closures of sidewalk must be approved by the engineer and conform to signing shown on the traffic control plan. At locations where crosswalks 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, stage work to maintain a crosswalk at all times.

D 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 1060-33-84:

Stage 1A Traffic:

- Shift IH 41/USH 45 NB traffic to outside between Swan Blvd and Center Street
- Shift IH 41/USH 45 SB to the outside between Swan Blvd and Center Street, and to the inside between Center Street and Burleigh Street
- Close Ramps NOA, NOB, NOC, NOD, and NOG
- Close 113th Street south of Meinecke Avenue
- Close Meinecke Avenue between 113th Street and 112th Street

Stage 1B Traffic:

- IH 41/USH 45 NB traffic remains in location from previous stage
- Shift IH 41/USH 45 SB to inside between Swan Blvd and Mayfair Road, to the outside between Mayfair Road and Center Street, and to the inside between Center Street and Burleigh Street
- Ramps NOA, NOB, NOC, NOD, and NOG are closed
- Meinecke Avenue between 113th Street and 112th Street remains closed
- Close Underwood Parkway at IH 41/USH 45

Stage 1C Traffic:

- Shift IH 41/USH 45 NB traffic to inside between Mayfair Road and Meinecke Avenue and outside between Center Street and Burleigh Street
- Shift IH 41/USH 45 SB to inside between Swan Blvd and Center Street, and to the outside between Center Street and Burleigh Street
- Ramps NOA, NOB, NOC, NOD, and NOG are closed
- Meinecke Avenue remains closed between 113th Street and 112th Street
- 113th Street remains one lane, one-way on the west side
- Underwood Parkway remains closed at IH 41/USH 45

Stage 1C Substage 1 Traffic:

- Reduce IH 41/USH 45 SB to two lanes between Mayfair Road and Burleigh Street
- All other traffic remains as shown in Stage 1C

Stage 1C Substage 2 Traffic:

- Reduce IH 41/USH 45 NB to two lanes between Mayfair Road and UPRR
- All other traffic remains as shown in Stage 1C

Stage 2A Traffic:

- Reduce IH 41/USH 45 NB to two lanes and shift NB traffic to inside IH 41/USH 45 SB side between Watertown Plank Road and Burleigh Street
- IH 41/USH 45 SB shifts to outside between Swan Blvd and Burleigh Street
- Close Ramp MA
- Ramps NOA, NOB, NOC, NOD, and NOG remain closed
- Underwood Parkway remains closed at IH 41/USH 45

Stage 2B Traffic:

- Open IH 41/USH 45 NB to three lanes and maintain NB traffic on inside IH 41/USH 45 SB side between Watertown Plank Road and Burleigh Street
- IH 41/USH 45 SB remains outside between Swan Blvd and Burleigh Street
- Ramps NOA, NOB, NOC, NOD, and NOG remain closed
- Underwood Parkway remains closed at IH 41/USH 45

North Avenue – Stage 1A and North Avenue – Stage 1B:

- Close North Avenue between 116th Street and UPRR and maintain one lane in each direction from the driveway located at the NB ramp terminals to Mayfair Road
- WB North Avenue reduced to one lane east of Mayfair Road, and Mayfair Road turn lanes to WB North Avenue reduced to one lane
- Close 115th Street, 114th Street, and 113th Street at North Avenue

Stage 3 Traffic:

- Shift IH 41/USH 45 NB traffic to the outside of IH 41/USH 45 NB side between Watertown Plank Road and Burleigh Street
- IH 41/USH 45 SB remains on the outside between Swan Blvd and Burleigh Street
- Open Ramp MA
- Ramps NOA, NOB, NOC, NOD, and NOG remain closed
- Underwood Parkway remains closed at IH 41/USH 45
- North Avenue open to two lanes in each direction between 116th Street and Mayfair Road

Stage 4 Traffic:

- IH 41/USH 45 NB traffic remains on the outside of IH 41/USH 45 NB side between Watertown Plank Road and Burleigh Street
- Shift IH 41/USH 45 SB to crossover to the inside IH 41/USH 45 NB side between Swan Blvd and Burleigh Street
- Ramps NOA, NOB, NOC, NOD, and NOG remain closed
- Close Ramp BUC
- Underwood Parkway remains closed at IH 41/USH 45

North Avenue – Stage 2A and North Avenue – Stage 2B:

- Maintain two lanes WB and one lane EB on North Avenue.

Stage 5 Traffic:

- IH 41/USH 45 NB traffic remains on the outside of IH 41/USH 45 NB side between Watertown Plank Road and Burleigh Street
- Shift IH 41/USH 45 SB to the outside IH 41/USH 45 SB side between Watertown Plank Road and Mayfair Road and between Center Street and Burleigh
- Open Ramps NOC, NOD, and NOG for IH 41/USH 45 SB
- Open Ramps NOA and NOB when IH 41/USH 45 pavement marking is placed through the interchange
- Ramp BUC remains closed
- Underwood Parkway remains closed at IH 41/USH 45

PROJECT 1100-18-73:

B-40-777:

- Close IH 41/ USH 45 SB to Watertown Plank Road EB off ramp (Ramp WG)

B-40-778:

- Close Watertown Plank Road to IH 41/ USH 45 SB on ramp (Ramp WH)

B-40-781:

- Close Watertown Plank Road to IH 41/ USH 45 NB on ramp (Ramp WF)

B-40-782:

- Close IH 41/ USH 45 NB to Watertown Plank Road WB off ramp (Ramp WE)

B-40-788/790/797:

Stage 1

- Close Bluemound Road to IH 41/ USH 45 SB on ramp (Ramp BC) and inside two lanes of IH 41/ USH 45 SB

Stage 2

- Close IH 41/USH 45 SB to Greenfield Avenue off ramp (Ramp GD), Bluemound Road to IH 41/USH 45 SB on ramp (Ramp BC) and outside two lanes of IH 41/ USH 45 SB

B-40-789/791/798:

Stage 1

- Close inside two lanes of IH 41/ USH 45 NB at bridges B-40-789/791/798

Stage 2

- Close Greenfield Avenue to IH 894/ USH 45 NB on ramp (Ramp GE) and outside two lanes of IH 41/ USH 45 NB at bridges B-40-789/791/798

B-40-795/859:

- Close IH 41/ USH 45 SB to Greenfield Avenue off ramp (Ramp GD)

B-40-796:

Stage 1

- Close single left lane of IH 94 EB to IH 894 EB/ USH 45 SB system ramp (Ramp WS)

Stage 2

- Close single right lane closure of IH 94 EB to IH 894 EB/ USH 45 SB system ramp (Ramp WS)

B-40-799/860:

- Close Greenfield Avenue to IH 41/ USH 45 NB on ramp (Ramp GE)

B-40-849:

Stage 1

- Close Greenfield Avenue to IH 894 WB/ USH 45 NB on ramp (Ramp GA) and inside single lane of IH 894 WB/ USH 45 NB system ramps (Ramp SW)

Stage 2

- Close Greenfield Avenue to IH 894 WB/ USH 45 NB on ramp (Ramp GA) and IH 894 WB/ USH 45 NB to IH 94 EB on ramp (Ramp SE) and outside single lane closure of IH 894 WB/ USH 45 NB to IH 94 WB system ramp (Ramp SW)

B-40-851/861:

- Close IH 894/ USH 45 NB to IH 94 EB system ramp (Ramp SE)

B-40-857:

Stage 1

- Close inside single lane of IH 41/ USH 45 SB to IH 94 EB system ramp (Ramp NE). Maintain one lane of traffic on both IH 41/ USH 45 SB system ramps (Ramps NE and NW)

Stage 2

- Close outside single lane of IH 41/ USH 45 SB to IH 94 EB system ramp (Ramp NE) and close IH 41/ USH 45 SB to IH 94 NB system ramp (Ramp NW)

B-40-863:

Stage 1

- Close inside two lanes of IH 94 WB at bridge B-40-863

Stage 2

- Close outside three lanes of IH 94 WB at bridge B-40-863

B-40-864:

Stage 1

- Close outside three lanes of IH 94 EB at bridge B-40-864. Maintain a single lane of traffic on IH 94 EB to 84th Street off ramp (Ramp FG)

Stage 2

- Close inside three lanes of IH 94 EB at bridge B-40-864

B-40-869:

Stage 1

- Close inside two lanes closures of IH 94 WB at bridge B-40-869

Stage 2

- Close outside three lanes of IH 94 WB at bridge B-40-869 and close STH 100 to IH 94 WB on ramp (Ramp SD)

B-40-870:

Stage 1

- Close inside three lanes of IH 94 EB at bridge B-40-870

Stage 2

- Close outside three lanes of IH 94 EB at bridge B-40-870 and close IH 94 EB to STH 100 off ramp (Ramp SC)

B-40-871/873:

Stage 1

- Close inside two lanes of IH 94 WB at bridges B-40-871/873

Stage 2

- Close STH 100 to IH 94 WB on ramp (Ramp SD) and outside three lanes of IH 94 WB at bridges B-40-871/873

B-40-872/874:

Stage 1

- Close inside two lanes of IH 94 EB at bridges B-40-872/874

Stage 2

- Close three lanes of IH 94 EB at bridges B-40-872/874

B-40-882:

Stage 1

- Close Greenfield Avenue to IH 894 EB/ USH 45 SB on ramp (Ramp GC) and inside three lanes of IH 894 EB/ USH 45 SB at bridge B-40-882

Stage 2

- Close Greenfield Avenue to IH 894 EB/ USH 45 SB on ramp (Ramp GC) and outside three lanes of IH 894 EB/ USH 45 SB at bridge B-40-882

B-40-883:

Stage 1

- Close inside three lanes of IH 894 WB/ USH 45 NB at bridge B-40-883

Stage 2

- Close Lincoln Avenue to IH 894 WB/ USH 45 NB on ramp (Ramp LA) and outside three lanes of IH 894 WB/ USH 45 NB at bridge B-40-883

B-40-891:

- Close IH 94 WB to STH 100 off ramp (Ramp SA)

PROJECT 1100-18-76:

B-40-769:

Stage 1:

- Close all lanes of WB Greenfield Avenue at bridge B-40-769
- Close dual left turn lanes on IH 41 NB exit ramp to WB Greenfield Avenue

Stage 2:

- Close all lanes on EB Greenfield Avenue at bridge B-40-769
- Close left turn lane on IH 41 SB exit ramp to EB Greenfield Avenue

B-40-770:

Stage 1:

- Close inside two lanes of SB STH 100 at bridge B-40-770

Stage 2 Construction:

- Close outside two lanes of SB STH 100 at bridge B-40-770
- Close right turn lane on IH 94 WB exit ramp to SB STH 100

B-40-771:

Stage 1:

- Close inside two lanes of NB STH 100 at bridge B-40-771
- Close inside left turn lane on IH 94 EB exit ramp to NB STH 100

Stage 2:

- Close outside two lanes of NB STH 100 at bridge B-40-771
- Close outside left turn lane on IH 94 EB exit ramp to NB STH 100

B-40-775:

Stage 1:

- Close all lanes on Swan Blvd at bridge B-40-775

B-40-785:

Stage 1:

- Close all lanes on 76th Street at bridge B-40-785

B-40-862:

Stage 1:

- Close all lanes on 92nd Street at bridge B-40-862

B-40-866:

Stage 1:

- Close all lanes of WB Bluemound Road at bridge B-40-866
- Close dual left turn lanes on IH 41 NB exit ramp to WB Bluemound Road

Stage 2:

- Close all lanes of EB Bluemound Road at bridge B-40-866
- Close dual left turn lanes on IH 41 SB exit ramp to EB Bluemound Road

B-40-867:

Stage 1:

- Close all lanes on Wisconsin Avenue at bridge B-40-867

B-40-880:

Stage 1:

- Close all lanes on Center Street at bridge B-40-880

B-40-884:

Stage 1:

- Close all lanes on Cleveland Avenue at bridge B-40-884

B-67-344:

Stage 1:

- Close all lanes on Sunnyslope Road at bridge B-67-344

B-67-345:

Stage 1:

- Close all lanes on Elm Grove Road at bridge B-67-345

E Wisconsin Lane Closure System Advance Notification

Notify the engineer and SEF Construction Program Work Zone and Traffic Engineer, Stephanie Leranth, (414) 750-1397, 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 engineer and WisDOT STOC. Notify WisDOT Signal Operations, (414) 750-2605, and WisDOT electrical Field Unit, (414) 266-1170, regarding changes for alternate routes and detours.

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

Freeway Special Event Restrictions

During Summer Fest, scheduled for June 23 – July 4, 2021; June 29 – July 10, 2022; and June 28 – July 9, 2023, keep open the following roadways until one hour after the event closes each night:

- Two open lanes on northbound IH 41 and westbound IH 94
- One open lane on southbound IH 41 and eastbound IH 94
- 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)

During Wisconsin State Fair, scheduled for August 5-15, 2021; August 4-14, 2022 and August 3-13, 2023, keep open the following roadways until one hour after the event closes each night:

- Two open lanes on IH 41, IH 94 and IH 894 in both directions

- 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)

On days with a Milwaukee Brewer home game at Miller Park, maintain two open lanes on northbound IH 41 and westbound IH 94 until four hours after the event begins. IH 41 and IH 94 restrictions during other special events at Miller Park will be determined on an as needed basis as determined by the engineer.

During Milwaukee County Zoo ala Carte scheduled for August 19-22, 2021; August 18-21, 2022 and August 17-20, 2023, maintain two open lanes on northbound IH 41 and westbound IH 94 until one hour after the event closes. During Mother's Day May 9, 2021, May 8, 2022, and May 14, 2023, maintain two open lanes on northbound IH 41 and westbound IH 94 until one hour after Milwaukee County Zoo closes. During Father's Day June 20, 2021, June 19, 2022, and June 18, 2023, maintain two open lanes on northbound IH 41 and westbound IH 94 until one hour after Milwaukee County Zoo closes.

8. Holiday and Special Event Restrictions.

Do not perform work nor haul materials of any kind, and entirely clear the traveled way and shoulders of equipment, barricades, signs, lights, and any other material that might impede the free flow of traffic during the following holiday periods:

- From noon Friday, May 28, 2021 to 6:00 AM Tuesday, June 1, 2021 for Memorial Day;
- From noon Friday, July 2, 2021 to 6:00 AM Tuesday, July 6, 2021 for Independence Day;
- From noon Friday, September 3, 2021 to 6:00 AM Tuesday, September 7, 2021 for Labor Day;
- From noon Wednesday, November 24, 2021 to 6:00 AM Monday, November 29, 2021 for Thanksgiving;
- From noon Thursday, December 23, 2021 to 6:00 AM Monday, December 27, 2021 for Christmas;
- From noon Friday, December 31, 2021 to 6:00 AM Tuesday, January 4, 2022 for New Year's Day;
- From noon Friday, May 27, 2022 to 6:00 AM Tuesday, May 31, 2022 for Memorial Day;
- From noon Friday, July 1, 2022 to 6:00 AM Tuesday, July 5, 2022 for Independence Day;
- From noon Friday, September 2, 2022 to 6:00 AM Tuesday, September 6, 2022 for Labor Day;
- From noon Wednesday, November 23, 2022 to 6:00 AM Monday, November 28, 2022 for Thanksgiving;
- From noon Friday, December 23, 2022 to 6:00 AM Tuesday, December 27, 2022 for Christmas;
- From noon Friday, December 30, 2022 to 6:00 AM Tuesday, January 3, 2023 for New Year's Day;
- From noon Friday, May 26, 2023 to 6:00 AM Tuesday, May 30, 2023 for Memorial Day;
- From noon Monday, July 3, 2023 to 6:00 AM Wednesday, July 5, 2023 for Independence Day;
- From noon Friday, September 1, 2023 to 6:00 AM Tuesday, September 5, 2023 for Labor Day;
- From noon Wednesday, November 22, 2023 to 6:00 AM Monday, November 27, 2023 for Thanksgiving;
- From noon Friday, December 22, 2023 to 6:00 AM Tuesday, December 26, 2023 for Christmas;

- From noon Friday, December 29, 2023 to 6:00 AM Tuesday, January 2, 2024 for New Year's Day.

Freeway Special Event Restrictions

- During Summer Fest, scheduled for June 23 – July 4, 2021; June 29 – July 10, 2022; and June 28 – July 9, 2023: Until one hour after the event closes each night:
- During Wisconsin State Fair, scheduled for August 5-15, 2021; August 4-14, 2022 and August 3-13, 2023: Until one hour after the event closes each night:
- On days with a Milwaukee Brewer home game at Miller Park: Until four hours after the event begins. IH 41 and IH 94 restrictions during other special events at Miller Park will be determined on an as needed basis as determined by the engineer.
- Milwaukee County Zoo:
- During ala Carte scheduled for August 19-22, 2021; August 18-21, 2022 and August 17-20, 2023: Until one hour after the event closes.
- During Mother's Day May 9, 2021, May 8, 2022, and May 14, 2023: Until one hour after Milwaukee County Zoo closes.
- During Father's Day June 20, 2021, June 19, 2022, and June 18, 2023: Until one hour after Milwaukee County Zoo closes.

9. Utilities.

Project 1060-33-84 (Zoo IC, USH 45)

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. Permits for USH 45, the USH 45/North Avenue Interchange and STH 100 can be viewed at the Region Office during normal working hours. Contact WisDOT SE Freeways Utility Coordinator Mike Birschbach at (414) 750-2532 for further information. Permits for North Avenue, 112th Street, 113th Street and 116th Street can be viewed at the City of Wauwatosa during normal working hours. Contact Wauwatosa City Engineer Bill Wehrley at (414) 479-8929 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 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 during the life of the project. The contractor shall cooperate and coordinate construction activities with these companies.

There may be discontinued utility facilities within the project limits. If a conflict with a discontinued 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:

AT&T Local Network (aka. Teleport Communications of America) has existing overhead and underground communications facilities within the project limits in the following locations:

- An overhead communications line on We Energies' poles beginning south of the UPRR project limits and running northerly along the westerly UPRR right-of-way to a pole at Station 5RDE+50, 76'LT. This line will remain in place without adjustment.
- An underground communications line in We Energies' conduit beginning at a pole along the westerly UPRR right-of-way at Station 5RDE+50, 76'LT and running northerly to a manhole at Station 6RDE+24, 83'LT and continuing northwesterly to a manhole at Station 10RDE+58, 110'LT. From there it will turn and run easterly, crossing the UPRR at Station 10RDE+58, and continues easterly to a manhole at Station 10RDE+58, 79'RT. From there it will turn and run northerly, crossing USH 45 at Station 416NS+60, and continue northerly to a manhole at Station 14RDE+60, 78'RT. From there it will continue northerly and end at a pole at Station 15RDE+08, 56'RT. This line will remain in place without adjustment.
- An overhead communications line on We Energies' poles beginning at a pole at Station 14RDE+35, 56'RT and running northerly along the easterly UPRR right-of-way, crossing North Avenue at Station 122NO+01, and continuing beyond the project limits. This line will remain in place without adjustment.

The AT&T Local Network contact is Jennifer Navarro, (414) 459-3564, of Northwind Technical Services.

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

- An existing underground communications line beginning beyond the southerly project limits and running northerly along the median of Mayfair Road to a manhole at Station 593M+29, 4'RT and running northwesterly to Station 593M+82, 14'LT where it will turn and run northerly to Station 595M+64, 14'LT and then turn and run northeasterly to a manhole at Station 596M+16, 4'RT and continuing northerly to beyond the project limits. This line will remain in place without adjustment.
- An existing underground communications line beginning beyond the westerly project limits and running easterly along the median of North Avenue to a manhole at Station 100NO+23, 11'LT and continues to run easterly to a manhole at 106NO+66, 11'LT. From there it continues northeasterly to 107NO+06, 22'LT where it will turn and run easterly to Station 119NO+75, 22'LT and then turn and run southeasterly to a manhole at Station 120NO+10, 11'LT From there it continues easterly to a manhole at Station 124NO+06, 11'LT and continues easterly to beyond the project limits. Prior to construction, AT&T Wisconsin will relocate portions of this line beginning beyond the westerly project limits and running easterly along a line 20' north of the North Avenue reference line to Station 99NO+33, 20'LT and turning southeasterly to an existing manhole at Station 100NO+23, 11'LT. From there it runs northeasterly to Station 100NO+58, 20'LT and turns easterly running along a line 20' north of the North Avenue reference line to Station 106NO+00, 20'LT and turning southeasterly to an existing manhole at Station 106NO+66, 11'LT. The remainder of this line will remain in place without adjustment from the manhole at Station 106NO+66, 11'LT running east to beyond the easterly project limits.
- A new underground communications line beginning at Station 100TS+62, 13'RT and running northeasterly and then turning southeasterly to Station 101TS+17, 13'RT where it will connect to an existing communications line. This line will remain in place without adjustment.
- An existing underground communications line beginning at a manhole at Station 106NO+66, 11'LT and running southerly along the east side of 114th Street to Station 98TS+64, 3'RT where it turns and runs southwesterly and westerly to a AT&T Wisconsin communications building at Station 98TS+38, 60'LT. This line will remain in place without adjustment.
- An existing underground communications line beginning at a manhole at Station 106NO+66, 11'LT and running southerly along the east side of 114th Street to Station 98TS+38, 11'RT where it turns and runs southwesterly and westerly to an AT&T Wisconsin cabinet at Station 98TS+23, 31'LT. This line will remain in place without adjustment.
- An existing underground communications line beginning at a manhole at Station 106NO+66, 11'LT and running northerly along the east side of 114th Street to Station 100TS+62, 13'RT and running northwesterly and then turning northeasterly to Station 101TS+17, 13'RT, running northerly beyond the project limits. This line will remain in place without adjustment. An existing underground communications line beginning at a manhole at Station 120NO+10, 11'LT and running southerly to

Station 119NO+98, 53’RT at the southerly sidewalk of North Avenue where it turns and runs westerly to Station 117NO+12, 61’RT and the runs southwesterly to a pedestal at Station 116NO+62, 83’RT. From there it runs southerly to beyond the project limits. This line will remain in place without adjustment.

- An existing underground communications line beginning at a manhole at Station 120NO+10, 11’LT and running northerly to a pull box at Station 120NO+07, 60’LT where it turns and runs easterly to Station 121NO+03, 60’LT and then turns and runs northerly to beyond the project limits. This line will remain in place without adjustment.
- An existing underground communications line beginning at a manhole at Station 124NO+06, 11’LT and running northeasterly to beyond the project limits. This line will remain in place without adjustment.

During construction, AT&T Wisconsin will adjust manholes in North Avenue at Station 100NO+23, 11’LT, 106NO+66, 11’LT, and Station 120NO+10, 11’LT. They will also demolish an existing manhole at Station 113NO+37, 2’LT. Allow AT&T Wisconsin 3 consecutive working days to perform the adjustments and demolition of the manholes. Contact Jay Bulanek, (262) 896-7669 office / (414) 491-2855 cell, of AT&T Wisconsin 5 days prior to any paving operations to coordinate manhole adjustments.

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

- A discontinued underground communications line beginning at a manhole at Station 106NO+66, 11’LT and running easterly to a manhole at Station 113NO+37, 2’LT where it continues easterly to a manhole at Station 120NO+10, 11’LT.
- A discontinued underground communications line beginning at a manhole at Station 113NO+37, 2’LT and running northerly to Station 113NO+37, 58’LT.
- A discontinued underground communications line beginning at a manhole at Station 113NO+37, 2’LT and running southerly to Station 113NO+32, 68’RT. From there it turns and runs easterly along the southerly right-of-way of North Avenue to Station 116NO+58, 62’RT where it turns southerly and ends near a pedestal at Station 116NO+62, 83’RT.
- A discontinued underground communications line beginning at a manhole at Station 120NO+10, 11’LT and running southerly to Station 120NO+02, 53’RT at the southerly sidewalk of North Avenue where it turns and runs easterly to Station 120NO+76, 51’RT where it turns and runs southerly to beyond the project limits.
- An underground line in place between Station 593M+29, 4’RT and continuing northerly to a manhole at Station 596M+16, 4’R.

The AT&T Wisconsin contact is Jay Bulanek, (262) 896-7669 office / (414) 491-2855 cell.

Charter Communications has existing overhead and underground communications facilities within the project limits in the following locations:

- An overhead communications line on We Energies’ poles beginning south of the UPRR project limits and running northerly along the westerly UPRR right-of-way to a pole at Station 5RDE+50, 76’LT. This line will remain in place without adjustment.
- An underground communications line in We Energies’ conduit beginning at a pole along the westerly UPRR right-of-way at Station 5RDE+50, 76’LT and running northerly to a manhole at Station 6RDE+24, 83’LT and continuing northwesterly to a manhole at Station 10RDE+58, 110’LT. From there it will turn and run easterly, crossing the UPRR at Station 10RDE+58, and continues easterly to a manhole at Station 10RDE+58, 79’RT. From there it will turn and run northerly, crossing USH 45 at Station 416NS+60, and continue northerly to a manhole at Station 14RDE+60, 78’RT. From there it will continue northerly and end at a pole at Station 15RDE+08, 56’RT. This line will remain in place without adjustment.
- An overhead communications line on We Energies’ poles beginning at a pole at Station 14RDE+35, 56’RT and running northerly along the easterly UPRR right-of-way, crossing North Avenue at Station 122NO+01, and continuing beyond the project limits. This line will remain in place without adjustment.
- An underground communications line in We Energies’ conduit beginning beyond the easterly project limits at the UPRR at a pole at Station 22RDE+50, 59’RT and running westerly, crossing the UPRR at Station 22RDE+50, and continuing westerly to a pedestal at Station 22RDE+51, 83’LT. From there it

will run northerly in new Charter Communications conduit along the westerly UPRR right-of-way to a pedestal at Station 120NO+69, 68'RT. From there it will turn and run westerly along the southerly right-of-way of North Avenue to Station 117NO+52, 71'RT where it will turn and run southerly to beyond the project limits at North Avenue. This line will remain in place without adjustment.

- An overhead communications line on We Energies' poles beginning beyond the westerly project limits at Mayfair Road and running easterly to a pole at Station 598M+34, 66'LT where it turns and runs southeasterly, crossing Mayfair Road at Station 598M+20, and continues to a pole on the east side of Mayfair Road at Station 598M+00, 96'RT. From there it continues southeasterly to beyond the project limits. This line will remain in place without adjustment.
- An underground communications line beginning at a pedestal beyond the easterly project limits at USH 45 at Station 428NS+27, 157'RT and running westerly to Station 428NS+32, 123'RT where it turns and runs northerly along the easterly right-of-way of USH 45 to a pedestal at Station 430NS+75, 113'RT. From there it turns and runs easterly to beyond the project limits. This line will remain in place without adjustment.
- An overhead communications line on We Energies poles beginning beyond the westerly project limits at 113th Street and running easterly to a pole at Station 17TA+66, 18'RT and continuing easterly, crossing USH 45 at Station 442NS+97, and continuing easterly to a pole at the west side of 112th Street at Station 17TB+34, 21'LT. From there it runs southeasterly to beyond the project limits. Prior to and after construction of retaining walls and noise walls in this area is complete, Charter Communications will relocate this line in conjunction with a We Energies pole relocation at a crossing of USH 45 at Station 442NS+82 as hereinafter described.
- An underground communications line beginning at a cabinet at Station 791BUC+61, 58'LT and running northerly, crossing the USH 45 southbound on-ramp from Burleigh Street, and continuing northerly to Station 791BUC+79, 76'LT and then continuing to beyond the project limits. This line will remain in place without adjustment.
- An overhead communications line beginning at a pole at Station 786BUC+43, 74'LT and running northeasterly along the westerly right-of-way of USH 45 to a pole at Station 792BUC+22, 111'LT and then continuing to beyond the project limits. This line will remain in place without adjustment.
- An underground communications line beginning at a pole at Station 792BUC+22, 111'LT and running westerly along the southerly right-of-way of Burleigh Street and continuing beyond the project limits. This line will remain in place without adjustment.

Charter Communications also has discontinued communications facilities within the project limits in the following locations:

- An underground communications line beginning at a pole at Station 598M+36, 63'LT and running southerly along the westerly right-of-way of Mayfair Road to Station 597M+15, 60'LT where it turns and runs westerly to Station 597M+17, 153'LT and then turns and runs southerly and ends at Station 596M+68, 153'LT.
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- An underground communications line beginning at a pole at a pole at Station 23RDE+64, 68'RT and running westerly, crossing the UPRR at Station 23RDE+62, and continuing to Station 23RDE+59, 57'LT.
- An underground communications line beginning at Station 116NO+64, 52'LT and running easterly along the northerly side of North Avenue to Station 122NO+40, 59'LT.
- An underground communications line beginning at a pole at Station 105NO+74, 180'RT and running easterly, northeasterly and northerly to Station 106NO+21, 68'RT where it turns and runs easterly along the southerly side of North Avenue to Station 112NO+83, 78'RT. From there it turns southerly to a pedestal at Station 430NS+75, 113'RT.

The Charter Communications contact is Beau Abuya, (414) 908-1343 office / (414) 758-9241 cell.

Level 3 Communications has an existing underground communications line within the project limits beginning beyond the southerly project limits and running northeasterly along a line approximately 21' southeasterly of the northwesterly right-of-way of the Canadian Pacific Railroad, crossing Underwood Creek on the railroad structure over the creek and continuing northeasterly, crossing below USH 45 at

Station 406NS+68, and continuing northeasterly to beyond the project limits. This line will remain in place without adjustment.

The Level 3 Communications contact is Brahim Gaddour, (414) 908-1027 office / (414) 704-1026 cell.

Midwest Fiber Networks has an existing underground communications line in an existing WisDOT conduit package within the project limits beginning beyond the southerly project limits at Mayfair Road and running northerly along the median of Mayfair Road to a vault at Station 597M+80, 4'LT. From there it continues northerly to beyond the project limits. This line will remain in place without adjustment.

The Midwest Fiber Networks contact is Richard Trgovec, (414) 459-3554 office / (414) 349-2979 cell.

Milwaukee Metropolitan Sewerage District has existing underground sanitary and storm sewer facilities within the project limits in the following locations:

- An existing underground storm sewer tunnel beginning beyond the westerly project limits at USH 45 and running northeasterly, crossing USH 45 at Station 396NS+75, and continuing northeasterly to beyond the project limits. This line will remain in place without adjustment.
- An existing underground sanitary sewer beginning at a manhole beyond the southerly project limits at Mayfair Road and running northerly to a MMSD manhole at 593M+40, 26'LT. This line will remain in place without adjustment.
- An underground sanitary sewer beginning beyond the westerly project limits at USH 45 and running easterly to a manhole at Station 422NS+48, 205'LT where it turns and runs southeasterly to a manhole at Station 421NS+94, 205'LT. From there it runs southeasterly to a manhole at Station 418NS+54, 160'LT where it turns and runs southeasterly to a manhole at Station 9RDE+11, 151'LT where it turns and runs easterly across the UPRR and ends at a manhole at Station 9RDE+13, 51'RT. This line will remain in place without adjustment.
- An existing underground sanitary sewer beginning at a manhole at Station 9RDE+13, 51'RT. It then runs southeasterly to a manhole at Station 9RDE+06, 78'RT. From there it turns and runs easterly to a manhole near the west curb line of Mayfair Road at Station 593M+40, 49'LT and then continues easterly to a manhole at Station 593M+40, 26'LT and then continues easterly, crossing Mayfair Road at Station 593M+40, and continuing easterly to a manhole below USH 45 at Station 409NS+29, 39'LT. From there it turns and runs northeasterly, crossing USH 45 at Station 409NS+22, and continues northeasterly to beyond the project limits. This line will remain in place without adjustment.

Milwaukee Metropolitan Sewerage District also has a discontinued underground sanitary sewer within the project limits in the following locations:

- A discontinued underground sanitary sewer beginning at a manhole at Station 422NS+48, 205'LT and running easterly, crossing USH 45 at Station 420NS+21, and continuing easterly to a manhole at Station 419NS+25, 66'RT. From there the line runs southeasterly, crossing the UPRR, and continuing southeasterly to a manhole at Station 417NS+47, 114'RT where it turns and runs southerly along the east side of the UPRR, crossing USH 45 at Station 416NS+91 and continuing southerly to a manhole at Station 9RDE+13, 51'RT.

MMSD will adjust manholes at Mayfair Road during construction at Station 593M+40, 49'LT and Station 593M+40, 26'LT. Allow MMSD 2 consecutive working days to perform the adjustments. Contact Bob Rebitski, (414) 225-2214, of MMSD 5 days prior to any paving operations to coordinate manhole adjustments.

The Milwaukee Metropolitan Sewerage District contact is Tim Kaczkowski, (414) 225-2241 office / (414) 617-1429 cell.

Sprint Communications has an existing underground communications line within the project limits beginning beyond the southerly project limits and running northerly along a line approximately 15' east of the UPRR westerly right-of-way to the UPRR structure over USH 45 where it is attached to the westerly side of the structure. From there it continues northerly across USH 45 on the structure and continues northerly along a line approximately 15' east of the UPRR westerly right-of-way to the UPRR structure over North Avenue where it is attached to the westerly side of the structure. From there it continues

northerly across North Avenue on the structure and continues northerly to beyond the project limits. Prior to construction, Sprint Communications will relocate portions of this line beginning at a point approximately 80' north of Walnut Road by boring a new line easterly under the UPRR tracks to a point 15' west of the easterly right-of-way of the UPRR. From there they will turn and bore a new line northerly along a line 15' west of the easterly right-of-way of the UPRR, crossing under USH 45 at Station 417NS+15, and continuing northerly along a line 7' west of the easterly right-of-way, crossing North Avenue at Station 121NO+76 and continuing to a point 470' north of North Avenue. From there they will turn and bore a new line under the UPRR tracks and connect to the existing line at the west side of the UPRR.

The Sprint Communications contact is Dan Hilliard, (612) 217-3526.

Wauwatosa, City of – Street Lighting has existing street light poles and associated underground electric lines throughout the project limits along the east and west curb lines of Mayfair Road, North Avenue, and along Meinecke Avenue, 112th Street, 113th Street, 114th Street, 115th Street, and 116th Street. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.

The City of Wauwatosa – Street Lighting contact is Randy Michelz, (414) 471-8429 office / (414) 248-0987 cell.

Wauwatosa, City of – Traffic Signals has existing traffic signal facilities within the project limits at the following locations:

- At the intersection of North Avenue and the southbound on-ramp to USH 45.
- At the intersection of North Avenue and the northbound on-ramp to USH 45.

WisDOT will remove the existing City of Wauwatosa traffic signals and construct new WisDOT traffic signals at the intersection of North Avenue and the southbound on-ramp to USH 45 and at the intersection of North Avenue and the northbound on-ramp to USH 45. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.

The City of Wauwatosa – Traffic Signals contact is Randy Michelz, (414) 471-8429 office / (414) 248-0987 cell.

Wauwatosa, City of - Sewer has existing underground sanitary sewer facilities within the project limits in the following locations:

- An existing underground sanitary sewer beginning at a manhole in the southbound lanes of Mayfair Road at Station 591M+56, 45'LT and running northerly along the west side of Mayfair Road to an MMSD manhole at Station 593M+40, 49'LT and continuing northerly to a manhole at Station 593M+96, 42'LT. From there it continues northerly to a manhole at Station 596M+15, 45'LT and then continues northerly to beyond the northerly Mayfair Road project limits. This line will remain in place without adjustment. Adjust manholes as shown in the plans and bid items.
- An existing underground sanitary sewer beginning at a manhole beyond the southerly project limits at Mayfair Road and running northerly along the east side of Mayfair Road to a manhole at Station 593M+30, 48'RT. From there it turns northwesterly and connects to the MMSD sewer at Station 593M+40, 58'RT. This line will remain in place without adjustment. Adjust manholes as shown in the plans and bid items.
- An existing sanitary sewer beginning beyond the easterly project limits, east of the UPRR and running westerly to an existing MMSD manhole at Station 9RDE+06, 78'RT. This line will remain in place without adjustment.
- An existing underground sanitary sewer beginning at an MMSD manhole east of the UPRR at Station 9RDE+11, 151'LT and running southerly to an existing City of Wauwatosa manhole at Station 8RDE+50, 154'LT and running southwesterly off the project limits. This line will remain in place without adjustment.
- An existing underground sanitary sewer beginning west of the project limits and running easterly to a manhole at Station 106NO+51, 45'RT, where it turns and runs southerly along 114th Street to beyond

the project limits. This line will remain in place without adjustment. Adjust manholes as shown in the plans and bid items.

- An existing underground sanitary sewer beginning at a manhole at the south side of North Avenue at Station 115NO+37, 85'RT and running easterly along the southerly right-of-way of North Avenue, crossing the UPRR, and continuing easterly to a manhole at Station 121NO+71, 69'RT. From there it turns and runs northeasterly to a manhole at Station 122NO+61, 42'RT where it turns and runs easterly to beyond the project limits. This line will remain in place without adjustment. Adjust manholes as shown in the plans and bid items.
- An existing underground sanitary sewer beginning at a manhole at the south side of North Avenue at Station 117NO+11, 72'RT and running southerly to beyond the project limits. This line will remain in place without adjustment. Adjust manholes as shown in the plans and bid items.
- An existing underground sanitary sewer beginning at a manhole in Garfield Avenue at Station 731NOC+35, 96'LT and running northerly, crossing the southbound USH 45 on-ramp from North Avenue at Station 731NOC+92, and continuing northerly, crossing North Avenue at Station 109NO+88, and continuing northerly to a manhole in 113th Street at Station 11TA+95, 0'RT. From there it continues northerly along the center of 113th Street, crossing Meinecke Avenue at Station 18ME+36, and continuing northerly to beyond the 113th Street project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.
- An existing underground sanitary sewer beginning at a manhole in 113th Street at Station 11TA+95, 0'RT and running westerly along an alley to beyond the project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.
- An existing underground sanitary sewer beginning at a manhole in 113th Street at Station 15TA+82, 0'RT and running northeasterly, crossing USH 45 at Station 442NS+02, and continuing northeasterly to a manhole in 112th Street at Station 17TB+25, 0'LT. From there it runs easterly to a manhole at Station 17TB+25, 10'RT where it turns and runs southeasterly along the northeasterly right-of-way of the USH 45/ North Avenue interchange to a manhole at Station 738NOA+00, 145'RT. From there it turns and runs northeasterly to beyond the project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.
- An existing underground sanitary sewer beginning at a manhole in 112th Street at Station 17TB+25, 0'LT and running northerly along the center of 112th Street, crossing Meinecke Avenue at Station 21ME+66, and continuing northerly along 112th Street to beyond the project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.
- An existing underground sanitary sewer beginning at a manhole in 112th Street at Station 27TB+97, 0'LT and running easterly along the center of Clarke Street to beyond the project limits. This line will remain in place without adjustment. Adjust manholes as shown in the plans and bid items.
- An existing underground sanitary sewer beginning at a manhole west of the project limits at USH 45 at Station 466NS+72, 163'LT and running northeasterly, crossing USH 45 at Station 466NS+69, and continuing northeasterly to beyond the project limits. This line will remain in place without adjustment.

Wauwatosa, City of – Sewer also has discontinued sanitary facilities within the project limits in the following locations:

- A discontinued sanitary sewer beginning at a manhole at Station 593M+96, 42'LT running northly to a manhole at Station 596M+15, 45'LT.
- An existing underground sanitary sewer beginning at an MMSD manhole east of the UPRR at Station 9RDE+06, 51'RT and running westerly, crossing the UPRR at Station 9RDE+05, and continuing westerly to a manhole along the westerly UPRR right-of-way at Station 9RDE+04, 64'LT. From there it turns and runs southwesterly to a manhole at Station 8RDE+67, 126'LT located beyond the project limits.
- An existing private underground sanitary sewer beginning at an MMSD manhole north of USH 45 at Station 419NS+25, 66'RT and running northerly to a manhole at Station 419NS+32, 75'RT. From there it turns northwesterly to a manhole at Station 420NS+66, 163'RT and continues northwesterly to a manhole at Station 421NS+47, 142'RT. From there it turns southwesterly to a manhole at Station 422NS+47, 142' RT. It then turns northwesterly, running parallel to USH 45 to a manhole at Station 425NS+00, 137'RT, where it runs northeasterly beyond the northern project limits.

The City of Wauwatosa – Sewer contact is Mike Maki, (414) 479-8991.

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

- An existing underground water main located on the east side of Mayfair Road beginning at a hydrant at Station 592M+10, 53'RT and running southerly along the east side of Mayfair Road to beyond the project limits. This line will remain in place without adjustment. Adjust water valves as shown in the plans and bid items.
- An existing underground water main beginning beyond the southerly project limits at Mayfair Road and running northerly along the west curb line of Mayfair Road to beyond the project limits. This line will remain in place without adjustment. Adjust water valves as shown in the plans and bid items.
- An existing underground water main beginning beyond the easterly project limits at Mayfair Road and running westerly to Station 596M+84, 168'RT where it turns and runs northwesterly to Station 598M+13, 94'RT. From there it turns and runs westerly to Station 598M+19, 77'RT where it turns and runs northerly along the east sidewalk of Mayfair Road to beyond the project limits. This line will remain in place without adjustment. Adjust water valves as shown in the plans and bid items.
- An existing underground water main beginning beyond the easterly project limits and running westerly to Station 426NS+05, 115'RT where it turns and runs northwesterly to Station 430NS+51, 123'RT. From there it turns and runs northerly to Station 430NS+66, 134'RT where it turns and runs northeasterly to beyond the project limits. This line will remain in place without adjustment.
- An existing underground water main beginning beyond the westerly project limits at North Avenue and running easterly along the southerly side of North Avenue e to a cross at Station 103NO+40, 53'RT and continuing easterly to a cross at Station 106NO+42, 55'RT and continuing to a manhole at Station 107NO+45, 52'RT and continuing along the southerly side of North Avenue to a tee at Station 109NO+88, 53'RT. From there it turns and runs easterly and southeasterly along the southerly side of North Avenue to a manhole at Station 115NO+75, 56'RT and continues to a tee at Station 116NO+89, 51'RT and continues along the southerly side of North Avenue to a hydrant at Station 119NO+84, 45'RT. From there it continues along the southerly side of North Avenue to beyond the project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.
- An existing underground water main beginning beyond the westerly project limits of North Avenue and running easterly along the northerly side of North Avenue to a tee at Station 103NO+43, 55'LT and continuing easterly along the northerly side of North Avenue to a cross at Station 106NO+58, 53'LT and continuing easterly to a tee at Station 109NO+71, 50'LT. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.
- An existing underground water main beginning at a tee on the southerly side of North Avenue at Station 103NO+40, 53'RT and running southerly along 115th Street to beyond the project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.
- An existing underground water main beginning at a tee on the northerly side of North Avenue at Station 103NO+43, 55'LT and running northerly along 115th Street to beyond the project limits. This line will remain in place without adjustment. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.
- An existing underground water main beginning at a cross on the southerly side of North Avenue at Station 106NO+42, 55'RT and running southerly along 114th Street to beyond the project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.
- An existing underground water main beginning at a tee on the southerly side of North Avenue at Station 107NO+45, 53'RT and running northerly to Station 107NO+45, 42'RT, where it turns northwesterly to Station 107NO+01, 8'RT, where it turns westerly to Station 106NO+58, 2'RT. From there it turns and runs northerly, crossing North Avenue at Station 106NO+58 and continuing northerly along 114th Street to beyond the project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.
- An existing underground water main beginning at a tee on the southerly side of North Avenue at Station 109NO+88, 53'RT and running northerly, crossing North Avenue at Station 109NO+80, and continuing northerly to a tee at Station 109NO+71, 50'LT. From there it continues northerly along 113th Street to a bend at Station 109NO+60, 135'LT where it turns northwesterly to a bend at Station 109NO+47, 158'LT. From there it turns northerly, running behind the west back of curb of 113th Street, crossing Meinecke Avenue at Station 18ME+18, and continuing northerly to a tee at Station 18ME+18, 8'LT. From there it

continues northerly along the west back of curb of 113th Street to a tee at Station 28TA+05, 18'LT and continues northerly to beyond the project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.

- An existing underground water main beginning at a tee on the southerly side of North Avenue at Station 115NO+71, 58'RT and running southerly to beyond the project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.
- An existing underground water main beginning at a tee on the southerly side of North Avenue at Station 116NO+89, 51'RT and running southerly to beyond the project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.
- An existing underground water main beginning at a tee in the Meinecke Avenue/ 113th Street intersection at Station 18ME+18, 8'LT and running westerly to beyond the project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.
- An existing underground water main beginning at a tee in the Clarke Street/ 113th Street intersection at Station 28TA+05, 18'LT and running westerly to beyond the project limits. This line will remain in place without adjustment. Adjust water valves as shown in the plans and bid items.
- An existing underground water main beginning at a hydrant in 112th Street at Station 17TB+32, 20'RT and running westerly to an elbow at Station 17TB+32, 8'RT. From there it turns and runs northerly along the northbound lane of 112th Street, crossing Meinecke Avenue at Station 21ME+74, and continuing northerly along the northbound lane of 112th Street to beyond the project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.
- An existing underground water main beginning at a tee in the Meinecke Avenue/ 112th Street intersection at Station 21ME+74, 8'RT and running easterly to beyond the project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.
- An existing underground water main beginning at a tee in the Clarke Street/ 112th Street intersection at Station 28TB+06, 8'RT and running easterly to beyond the project limits. This line will remain in place without adjustment. Adjust water valves as shown in the plans and bid items.
- An existing underground water main beginning beyond the westerly project limits at USH 45 and running easterly, crossing USH 45 at Station 462NS+95, and continuing easterly to beyond the project limits. This line will remain in place without adjustment.
- An existing underground water main beginning at a hydrant east of the Burleigh northbound off-ramp at Station 790BUB+62, 75'RT and running westerly to an elbow at Station 790BUB+62, 19'RT. From there it turns and runs northerly to a tee near the median of Burleigh Street beyond the project limits. This line will remain in place without adjustment.

Wauwatosa Water Utility also has discontinued facilities within the project limits as in the following locations:

- A discontinued underground water main located on the west side of Mayfair Road beginning at Station 594M+23, 53'LT and running northerly along the west side of Mayfair Road to Station 598M+31, 53'LT.
- A discontinued underground water main located on the east side of Mayfair Road beginning at Station 598M+13, 74'RT and running northerly along the easterly curb line of Mayfair Road to beyond the project limits.
- A discontinued underground water main beginning west of the project limits at USH 45 at Station 461NS+69, 183'LT and running easterly, crossing USH 45 at Station 461NS+60, and continuing to beyond the project limits.

The Wauwatosa Water Utility contact is Adam Florin, (414) 471-8480 Ext. 5915.

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

- Two parallel underground electric lines beginning beyond the southerly project limits and running northwesterly along the east side of USH 45 to an electric transformer at Station 385NS+32, 133'RT. From there it turns southwesterly, crossing USH 45 at Station 385NS+27, and continuing to a VFI

switch at Station 385NS+27, 150'LT where it turns and runs northerly along the westerly right-of-way of USH 45 to Station 390NS+84, 141'LT. From there it turns and runs westerly to beyond the project limits. This line will remain in place without adjustment.

- An underground electric line beginning at an electric transformer at Station 385NS+32, 133'RT and running easterly to Station 385NS+26, 206RT. From there it turns and runs northerly to beyond the project limits. This line will remain in place without adjustment.
- An overhead electric line beginning beyond the southerly limits and running northeasterly to a pole at Station 405NS+73, 97'LT. We Energies will remove this overhead line and poles prior to construction.
- An underground electric line beginning at a pole at Station 405NS+73, 97'LT and running southeasterly to a transformer at Station 403NS+05, 77'LT. From there it turns and runs northwesterly to a WisDOT lighting cabinet at Station 403NS+40, 81'LT which feeds the lights in the underdeck of the USH 45 bridge. We Energies will discontinue this underground line prior to construction.
- An overhead electric line beginning at a pole beyond the southerly project limits at Mayfair Road and running northerly along the easterly right-of-way of Mayfair Road to a pole at Station 591M+80, 60'RT. This line will remain in place without adjustment.
- An underground electric line beginning at a pole at Station 590M+80, 60'RT along the easterly right-of-way of Mayfair Road and running easterly to an electric pedestal beyond the project limits. This line will remain in place without adjustment.
- An underground electric line beginning beyond the southerly project limits at Mayfair Road and running northerly along the northbound lanes to a manhole at Station 595M+48, 17'RT and then continuing northerly to beyond the project limits at Mayfair Road. This line will remain in place without adjustment. We Energies will adjust the manhole at Station 595M+48, 17'RT during construction. Allow We Energies 2 consecutive working days to perform the adjustments. Contact Nicholas Welch, (414) 944-5765, of We Energies 5 days prior to any paving operations to coordinate manhole adjustments.
- An overhead electric line beginning beyond the westerly project limits at Mayfair Road and running easterly to a pole at Station 598M+34, 66'LT where it turns southeasterly, crossing Mayfair Road at Station 598M+20, and continuing to a pole located on the east side of Mayfair Road at Station 598M+00, 96'RT. From there it continues southeasterly to a pole on Fisher Parkway at Station 597M+73, 225'RT where it turns southwesterly to a light pole at Station 596M+76, 170'RT. From there it turns southeasterly to beyond the project limits. This line will remain in place without adjustment.
- An overhead pole line beginning south of the UPRR project limits and running northerly along the westerly UPRR right-of-way to a pole at Station 6RDE+40, 78'LT, where it turns and runs westerly beyond the project limits. This line will remain in place without adjustment.
- An underground electric conduit beginning at a pole along the westerly UPRR right-of-way at Station 6RDE+10, 78'LT and running southerly to Station 5RDE+82, 68'LT where it turns and runs easterly, crossing the UPRR at Station 5RDE+82, and continues to a VFI switch along the easterly UPRR right-of-way at Station 5RDE+82, 48'RT. From there it runs northerly along the easterly right-of-way to a transformer at Station 7RDE+30, 48'RT. This conduit will remain in place without adjustment.
- An underground electric conduit beginning at a pole along the westerly UPRR right-of-way at Station 5RDE+50, 76'LT and running northerly to a manhole at Station 6RDE+24, 83'LT and continuing northwesterly to a manhole at Station 10RDE+58, 110'LT. From there it turns and runs easterly, crossing the UPRR at Station 10RDE+58 encased in a 30-inch steel casing, and continues easterly to a manhole at Station 10RDE+58, 79'RT. From there it turns and runs northerly, crossing USH 45 at Station 416NS+60 encased in a 30-inch steel casing, and continues northerly to a manhole at Station 14RDE+75, 78'RT. From there it continues northerly and ends at a pole at Station 15RDE+08, 56'RT. This line will remain in place without adjustment.
- An overhead electric line beginning beyond the easterly project limits of the UPRR at a pole at Station 13RDE+94, 155'RT and running northwesterly to a pole at Station 14RDE+35, 54'RT. From there it turns and runs northerly along the easterly UPRR right-of-way, crossing North Avenue at Station 122NO+01, and continuing beyond the project limits. This line will remain in place without adjustment.
- An underground electric conduit beginning at a pole outside of the easterly project limits of the UPRR at Station 20RDE+43, 59'RT and running westerly, crossing the UPRR at Station 20RDE+43, and continuing westerly to Station 20RDE+43, 61'LT. From there it turns and runs southerly to Station 19RDE+28, 61'LT where it turns westerly to beyond the project limits. This conduit will remain in place without adjustment.
- An underground electric conduit beginning at a pole outside of the easterly project limits of the UPRR at Station 22RDE+50, 59'RT and running westerly, crossing the UPRR at Station 22RDE+50, and

continuing westerly to Station 22RDE+50, 78'LT where it turns and runs southerly to a transformer at Station 21RDE+98, 86'LT. From there it turns and runs northerly along the westerly UPRR right-of-way to Station 120NO+67, 65'RT where it turns westerly along the southerly right-of-way of North Avenue to Station 117NO+48, 68'RT. From there it turns and runs southerly to beyond the project limits at North Avenue. This conduit will remain in place without adjustment.

- An underground electric conduit beginning at a transformer along the easterly right-of-way of USH 45 at Station 431NS+71, 109'RT and running southerly to a transformer at Station 430NS+74, 122'RT where it turns southeasterly to beyond the project limits. This conduit will remain in place without adjustment.
- An overhead electric line beginning beyond the southerly project limits at North Avenue and running northerly to a pole on the southerly side of North Avenue at Station 101NO+73, 60'RT and continuing northerly, crossing North Avenue at Station 101NO+78, and continuing to a pole on the northerly side of North Avenue at Station 101NO+86, 86'LT and continuing northerly beyond the project limits. This line will remain in place without adjustment.
- An underground electric line beginning at a pole and meter located near the 114th Street cul-de-sac at Station 98TS+20, 76'LT and running easterly to Station 98TS+21, 39'LT where it turns and heads northerly to Station 106NO+26, 71'RT and turns easterly to a WisDOT pull box at Station 106NO+50, 69'RT. We Energies will discontinue this line in place and reconstruct a new electric service during construction in conjunction with reconstruction of lighting and signal facilities as shown in the plans. Contact Nicholas Welch, (414) 944-5765, of We Energies 10 days prior to disconnecting any existing lighting or signal facilities to coordinate removal and installation of new service.
- An underground electric line beginning at a pole at Station 118NO+78, 232'LT and running southwesterly to a meter at Station 117NO+82, 79'LT serving existing WisDOT facilities. We Energies will discontinue this line in place and reconstruct a new electric service during construction in conjunction with reconstruction of lighting, traffic management and signal facilities as shown in the plans. Contact Nicholas Welch, (414) 944-5765, of We Energies 10 days prior to disconnecting any existing lighting, traffic management or signal facilities to coordinate removal and installation of new service.
- An overhead electric line beginning at a pole on the westerly right-of-way of 113th Street at Station 11TA+81, 47'LT and running westerly beyond the project limits. This line will remain in place without adjustment.
- An overhead electric line beginning at a pole at Station 17TA+67, 202'LT beyond the westerly project limits at 113th Street and running easterly to a pole at Station 17TA+66, 18'RT and continuing easterly, crossing USH 45 at Station 442NS+97, and continuing to a pole located on the west side of 112th Street at Station 17TB+34, 21'LT. From there it turns southeasterly to a pole at Station 737NOA+72, 145'RT where it turns and runs southerly and southeasterly to a pole at Station 735NOA+71, 135'RT. From there it turns southerly to a pole at Station 733NOA+92, 133'RT where it turns easterly to beyond the project limits. Prior to construction, We Energies will remove the overhead electric line from the pole at Station 17TA+67, 202'LT to the pole at Station 740NOA+28, 129'RT. The remainder of the line will remain in place without adjustment. After construction of the retaining walls and noise walls in this area is complete, We Energies will construct a new overhead line from the existing pole at Station 17TA+67, 202'LT, running easterly to a new pole at Station 17TA+59, 30'LT and continuing easterly, crossing USH 45 at Station 442NS+82, and continuing to a new pole located on the west side of 112th Street at 17TB+14, 2'LT. From there it turns southeasterly to an existing pole at Station 740NOA+28, 129'RT.
- An underground electric line beginning at a pole on 113th Street at Station 17TA+66, 18'RT and running southerly to a meter and transformer at Station 16TA+79, 24'RT which serves a WisDOT lighting cabinet at Station 16TA+78, 41'RT. We Energies will discontinue this line in place and reconstruct a new electric service during construction in conjunction with reconstruction of lighting facilities as shown in the plans. Contact Nicholas Welch, (414) 944-5765, of We Energies 10 days prior to disconnecting any existing lighting facilities to coordinate removal and installation of new service.
- An underground electric line beginning at a pole on the southerly side of Meinecke Avenue at Station 16ME+56, 36'RT and running easterly along the southerly right-of-way of Meinecke Avenue to Station 18ME+11, 30'RT where it turns and runs northerly, crossing Meinecke Avenue at Station 18ME+11, and continuing northerly to Station 18ME+11, 29'LT. From there it turns and runs easterly, crossing 113th Street at Station 19TA+30, and continuing easterly to Station 19TA+32, 22'RT. From there it turns and runs northerly to a transformer and meter serving a Wauwatosa lighting cabinet at Station 19TA+70, 25'RT. We Energies will discontinue this line in place and reconstruct a new electric service during construction in conjunction with reconstruction of lighting and signal facilities as shown in the plans. Contact Nicholas Welch, (414) 944-5765, of We Energies 10 days prior to disconnecting any existing lighting or signal facilities to coordinate removal and installation of new service.

- An overhead electric line beginning at a pole on the westerly right-of-way of USH 45 at Station 483NS+06, 152'LT and running northwesterly along the westerly right-of-way of USH 45 to a pole at Station 487NS+63, 268'LT. From there it turns and runs northerly along the westerly right-of-way of USH 45 to a pole at Station 490NS+46, 243'LT. From there it turns and runs northwesterly to a pole on the southerly right-of-way of Burleigh Street at Station 491NS+09, 293'LT and then runs northerly crossing Burleigh Street beyond the project limits. This line will remain in place without adjustment.

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

- An underground electric line beginning at a pole on the northbound side of USH 45 at Station 419NS+16, 137'RT and running northwesterly along the easterly right-of-way of USH 45 to Station 428NS+44, 125'RT. From there it turns and runs northeasterly to beyond the project limits.
- An underground electric line beginning at a pole on the northbound side of USH 45 at Station 419NS+16, 137'RT and running northwesterly along the easterly right-of-way of USH 45 to a transformer at Station 430NS+74, 122'RT and continuing northwesterly to a transformer at Station 431NS+71, 109'RT.
- An underground electric line beginning beyond the westerly project limits at USH 45 and running easterly to Station 463NS+26, 148'LT. From there it turns and runs northerly along the westerly right-of-way of USH 45 to Station 466NS+59, 120'LT and continues northwesterly along the westerly right-of-way of USH 45 to a pole at Station 483NS+06, 152'LT.

The We Energies – Electric contact is Nicholas Welch, (414) 944-5765 office / (414) 791-0406 cell.

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

- An underground gas man beginning beyond the southerly project limits at Mayfair Road and running northerly along the east sidewalk of Mayfair Road to Station 592M+83, 59'RT, where it turns and runs easterly to beyond the project limits. We Energies - Gas will discontinue this line prior to construction.
- An underground gas main beginning beyond the southerly project limits at Mayfair Road and running northerly in the northbound lanes of Mayfair Road, crossing USH 45 at Station 411NS+27, and continuing northerly to beyond the project limits. This line will remain in place without adjustment.
- An underground gas main beginning beyond the southerly project limits at Mayfair Road and running northerly along the west sidewalk of Mayfair Road to Station 593M+99, 57'LT where it turns northwesterly to Station 594M+10, 64'LT. From there it turns and runs northerly along the west sidewalk, crossing USH 45 at Station 412NS+22, and continuing northerly to Station 595M+99, 64'LT where it turns northeasterly to Station 596M+41, 61'LT and continues northerly to beyond the project limits. We Energies - Gas will discontinue portions of this line in place from beyond the southerly project limits to Station 597M+38, 58'LT prior to construction.
- An underground gas main beginning beyond the westerly limits at North Avenue and running easterly behind the southerly right-of-way of North Avenue, crossing 115th Street at Station 19TU+51, and continues easterly to a tee in the right turns lane of the North Avenue southbound on-ramp to USH 45 at Station 106NO+34, 63'RT. This line will remain in place without adjustment.
- An underground gas main beginning beyond the westerly project limits at North Avenue and running along the northerly side of North Avenue crossing 115th Street at Station 20TU+48, and continuing to a tee at Station 103NO+61, 35'LT. It continues easterly to a tee at Station 106NO+24, 33'LT and a tee at Station 106NO+36, 33'LT. From there it continues easterly, running along the westbound lanes of North Avenue to a bend at Station 120NO+12, 33'LT where it turns southeasterly to a bend at Station 120NO+19, 26'LT. From there it turns and runs easterly to a tee at Station 120NO+90, 28'LT and continues easterly to a bend at Station 121NO+84, 31'LT. From there it turns and runs northeasterly to a bend at Station 122NO+11, 55'LT where it turns and runs easterly to an elbow at Station 124NO+99, 58'LT where it turns southerly to Station 124NO+99, 57'LT and connects into an existing gas main. This line will remain in place without adjustment.
- An underground gas main beginning at a tee on the west side of 115th Street at Station 19TU+53, 28'LT and running southerly along the westerly right-of-way of 115th Street to an elbow at Station 19TU+04, 28'LT. From there it turns easterly and to Station 19TU+04, 11'LT. From there it runs southernly beyond the project limits. This line will remain in place without adjustment.

- An underground gas line beginning at a tee in the westbound lanes of North Avenue at Station 103NO+62, 33'LT and running northerly to a tee at Station 20TU+63, 29'RT and continuing northerly beyond the project limits. This line will remain in place without adjustment.
- An underground gas line beginning at a tee at Station 20TU+63, 29'RT and running westerly to an elbow at Station 20TU+63, 29'LT where it turns and runs northerly beyond the project limits. This line will remain in place without adjustment.
- An underground gas line beginning at a tee in the westbound lanes of North Avenue at Station 106NO+36, 33'LT and running southerly to the 114th Street cul-de-sac to a bend at Station 98TS+73, 17'LT where it turns and runs southerly and southwesterly to a bend at Station 98TS+38, 22'LT. From there it runs southerly to an elbow at Station 97TS+74, 22'LT where it turns easterly to a bend at Station 97TS+74, 10'LT and runs southerly beyond the project limits. This line will remain in place without adjustment.
- An underground gas line beginning at a tee in the westbound lanes of North Avenue at Station 106NO+24, 33'LT and running northerly along the easterly right-of-way of 114th Street to an elbow at Station 101TS+57, 27'LT where it turns easterly to a bend at Station 101TS+57, 19'LT and runs northerly beyond the project limits. This line will remain in place without adjustment.
- An underground gas line in 113th Street beginning at Station 11TA+32, 39'LT and running northerly along the westerly right-of-way of 113th Street, crossing Meinecke Avenue at Station 17ME+96, and continuing northerly beyond the project limits. This line will remain in place without adjustment.
- An underground gas line in 112th Street beginning at Station 17TB+43, 27'RT and running northerly to a tee at Station 18TB+67, 28'RT and continuing northerly, crossing Meinecke Avenue at Station 21ME+93. From there it continues northerly to a tee at Station 28TB+30, 28'RT and continues northerly to beyond the project limits. This line will remain in place without adjustment.
- An underground gas line beginning at a tee on the west side of 112th Street at Station 18TB+67, 28'RT and running easterly along the southerly right-of-way of Meinecke Avenue to beyond the project limits. This line will remain in place without adjustment.
- An underground gas line beginning at a tee on the east side of 112th Street at Station 28TB+30, 28'RT and running easterly along the southerly right-of-way of Clarke Street to beyond the project limits. This line will remain in place without adjustment.

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

- An underground gas main beginning at 395NS+36, 198'RT and running northwesterly along the easterly right-of-way of USH 45 to Station 403NS+42, 173'RT. From there it turns and runs southwesterly, crossing Ramp MA at Station 804MA+28, and continuing southwesterly to Station 403NS+87, 71'RT. From there it turns and runs northwesterly, crossing Underwood Creek Parkway and the UPRR, and continuing northwesterly to Station 809MA+83, 32'RT. From there it turns and runs northeasterly to beyond the project limits.
- An underground gas main beginning beyond the southerly project limits at Mayfair Road and running northerly along the northbound lanes, crossing USH 45 at Station 411NS+06, and continuing to beyond the project limits of Mayfair Road.
- An underground gas line beginning beyond the southerly project limits at Mayfair Road and running northerly along the southbound lanes to a valve at Station 593M+73, 21'LT. From there it continues northerly to a tee at Station 593M+92, 23'LT where it turns and runs northwesterly to Station 594M+26, 57'LT. From there it turns and runs northerly along the westerly sidewalk to beyond the project limits of Mayfair Road.
- An underground gas line beginning in the east sidewalk of Mayfair Road at Station 591M+34, 58'RT and running northerly to 592M+84, 59'RT.
- An underground gas line beginning on the west side of Mayfair Road at Station 590M+41, 58'LT and runs northerly to a bend at 594M+00, 57'LT. From there, it runs northwesterly to a bend at 594M+27, 64'LT, where it runs north to a tee at Station 596M+23, 62'LT. It then runs north to a valve at Station 597M+38, 58'LT.
- An underground gas line beginning at a tee at Station 596M+23, 62'LT and runs westerly to Station 596M+62, 91'LT.
- An underground gas line beginning in the east sidewalk of Mayfair Road at Station 593M+03, 59'RT and running northerly along the sidewalk to Station 593M+63, 59'RT. From there it turns and runs northwesterly to Station 593M+67, 53'RT where it turns and runs northerly along the east curb line to Station 593M+85, 53'RT. From there it turns and runs westerly, crossing Mayfair Road at Station 593M+92, and ending at a tee at Station 593M+92, 23'LT.

- An underground gas line beginning at a tee in the southbound lanes of 115th Street at Station 20TU+73, 10'LT and running northerly beyond the project limits of 115th Street.
- An underground gas main beginning at a tee at Station 109NO+51, 44'LT and running northerly along the west terrace area of 113th Street to a tee in the eastbound lanes of Meinecke Avenue at Station 18ME+04, 10'RT and continues northerly, crossing Meinecke Avenue at Station 18ME+04, and continues northerly along the west terrace of 113th Street beyond the project limits.
- An underground gas main beginning at a tee in the eastbound lanes of Meinecke Avenue at Station 18ME+04, 10'RT and running easterly along the eastbound lanes of Meinecke Avenue, crossing 113th Street at Station 18TA+90, and continuing easterly attached to the Meinecke Avenue bridge over USH 45 to Station 21ME+52, 10'RT. From there it turns and runs southerly along 112th Street to Station 21ME+52, 27'RT where it turns and runs easterly, crossing 112th Street at Station 18TB+73, and continues easterly along the southerly sidewalk of Meinecke Avenue to beyond the project limits.
- An underground gas main beginning at Station 17TB+41, 22'RT and running northerly along the east side of 112th Street, crossing Meinecke Avenue at Station 21ME+87, and continuing northerly along the east side of 112th Street to beyond the project limits.
- An underground gas main beginning at a tee in the westbound lanes of North Avenue at Station 113NO+66, 45'LT and running southerly, crossing North Avenue centerline at Station 113NO+64, and continuing to beyond the project limits at North Avenue.
- An underground gas main beginning beyond the southerly project limits at North Avenue and running northerly to Station 116NO+98, 66'RT. From there it turns and runs easterly to a tee on the southerly side of North Avenue at Station 117NO+22, 60'RT and continues easterly to Station 117NO+34, 60'RT. From there it turns and runs northerly, crossing North Avenue at Station 117NO+34, and continues to a tee on the northerly side of North Avenue at Station 117NO+34, 46'LT.
- An underground gas main beginning beyond the southerly project limits at North Avenue and running northerly to a tee on the southerly side of North Avenue at Station 117NO+22, 60'RT.
- An underground gas main beginning at a tee on the southerly side of North Avenue at Station 100NO+32, 49'RT and running easterly along the southerly side of North Avenue to a tee at Station 103NO+21, 49'RT.An underground gas main beginning at a tee on the southerly side of North Avenue at Station 103NO+21, 58'RT and running easterly along the southerly side of North Avenue to a tee at Station 106NO+40, 59'RT
- An underground gas main beginning beyond the westerly project limits at North Avenue and running along the northerly side of North Avenue to a tee at Station 103NO+04, 59'LT. From there it continues easterly, crossing 115th Street centerline at Station 20TU+73, and continuing to a tee at Station 103NO+62, 58'LT and continuing easterly along the northerly side of North Avenue to a tee at Station 106NO+32, 57'LT. From there it continues easterly to a tee at Station 106NO+41, 57'LT, crossing 114th Street centerline at Station 100TS+57, then continuing easterly to a bend at Station 109NO+32, 55'LT where it turns southeasterly to a bend at Station 109NO+46, 44'LT. From there it runs easterly to a tee at Station 109NO+51, 44'LT where it continues easterly along the westbound lanes of North Avenue to a tee at Station 113NO+66, 45'LT and continuing easterly to a tee at Station 117NO+34, 46'LT. From there it runs easterly to a tee at Station 120NO+91, 34'LT and continues easterly to beyond the project limits.
- An underground gas main on the west side of 115th Street at a bend at Station 19TU+04, 11'LT, running northerly to a bend at Station 20TU+73, 10'LT.
- An underground gas main on the west side of the 114th Street cul de sac at a bend at Station 97TS+73, 10'LT, running northerly to a tee at Station 106NO+41, 57'LT
- An underground gas main on the west side of 114th Street at a tee at Station 106NO+32, 57'LT, running northerly to a bend at Station 101TS+57, 19'LT.

Additionally, We Energies will remove discontinued gas main in conflict with proposed construction in locations where the gas main coating may contain hazardous material. Underground gas mains identified as having potential hazardous material coating are within the project limits in the following locations:

- An 8-inch steel gas main running along the northerly side of North Avenue as previously described.
- A 3-inch steel gas main running along the east side of 116th Street and crossing North Avenue as previously described.
- A 3-inch steel gas main running along the west side of 115th Street and crossing North Avenue as previously described.
- A 3-inch steel gas main running along the west side of 114th Street and crossing North Avenue as previously described.

- A 3-inch steel gas main running along the west side of 113th Street from North Avenue to Center Street as previously described.

We Energies will remove portions of discontinued gas main with potential hazardous material coatings during construction in construction with construction activities. Allow We Energies 1 day per conflict location for removal of the discontinued main. Contact Nick Ernster, (414) 944-5574, of We Energies 10 days prior to any activity that will expose the existing gas main to coordinate removal activities.

The We Energies - Gas contact is Nick Ernster, (414) 944-5574.

Wisconsin Independent Network (WIN) has an existing underground communications line in an existing WisDOT conduit package within the project limits beginning beyond the southerly project limits at Mayfair Road and running northerly along the median of Mayfair Road to a vault at Station 597M+80, 4'LT. From there it continues northerly to beyond the project limits. This line will remain in place without adjustment.

The Wisconsin Independent Network (WIN) contact is Dick Hammetter, (715) 838-4406 office / (414) 406-0722 cell.

WisDOT has existing overhead and underground communications facilities throughout the project limits, including along USH 45, along Mayfair Road, along the ramps at the USH 45/ North Avenue interchange, and along the ramps at the USH 45/ Burleigh Street interchange. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.

The WisDOT contact is Jeff Madson, (414) 225-3723.

WisDOT has existing overhead and underground lighting facilities throughout the project limits, including along the median of USH 45, along the northbound off-ramp to Mayfair Road, along the ramps at the USH 45/ North Avenue interchange, and along the ramps at the USH 45/ Burleigh Street interchange. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.

The WisDOT contact is Eric Perea, (262) 574-5422 office / (414) 750-0935 cell.

WisDOT has no existing traffic signal facilities within the project limits. WisDOT will remove existing City of Wauwatosa traffic signals and construct new WisDOT traffic signals at the intersection of North Avenue and the southbound on-ramp to USH 45 and at the intersection of North Avenue and the northbound on-ramp to USH 45. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.

The WisDOT contact is Derrin Wolford, (262) 521-4409 office / (414) 750-2675 cell.

Project 1060-33-84 (Zoo IC, W-S Ramp)

Relocation and construction of utilities within the construction limits of Project 1060-33-84 were coordinated under Project 1060-33-81. There are no known utility conflicts within the construction limits.

Additional detailed information regarding the location of new, discontinued, relocated, and/or removed utility facilities is available in the work plan provided by each utility company or on the permits issued to them. View these documents at the region WisDOT office during normal working hours.

Due to the Scope of Work, limited utility coordination was performed for this project.

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 statutes. Use caution to maintain the integrity of the utilities. Coordinate with the engineer to adjust plans as needed to avoid any unanticipated utility conflicts.

Project 1060-34-77 (Zoo IC, North Avenue)

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

Known utilities in the projects are as follows:

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

- An existing underground communications line beginning beyond the westerly project limits and running easterly along the median of North Avenue to a manhole at Station 100NO+23, 11'LT and continuing easterly to a manhole beyond the project limits at Station 106NO+66, 11'LT. Prior to construction, AT&T Wisconsin will relocate portions of this line beginning beyond the westerly project limits and running easterly along a line 20' north of the North Avenue reference line to Station 99NO+33, 20'LT and turning southeasterly to an existing manhole at Station 100NO+23, 11'LT.
- An empty underground communications duct package beginning at a manhole located at Station 100NO+23, 11'LT running southerly, crossing North Avenue at Station 100NO+23, and continuing southerly along the east side of 116th Street to Station 162TX+27, 36'RT. This line will remain in place without adjustment.
- An existing underground communications line beginning at a manhole located at Station 100NO+23, 11'LT running northerly along the east side of 116th Street to Station 165TX+21, 28'RT where it turns westerly, crossing 116th Street at Station 165TX+21, and continues westerly to a pole mounted cabinet at Station 165TX+21, 23'LT. This line will remain in place without adjustment.
- An overhead communications line on We Energies' poles beginning beyond the westerly project limits running easterly along an alley to a pole at Station 165TX+21, 23'LT and turning northerly running along the west side of 116th Street to beyond the project limits. Prior to construction, AT&T Wisconsin will relocate this line in conjunction with a We Energies pole relocation at Station 165TX+21, 29'LT as hereinafter described.

AT&T also has a discontinued underground communications line within the project limits in the following locations:

- A discontinued underground communications line within the project limits beginning at Station 98NO+93, 11'LT and running easterly to Station 99NO+59, 10'LT.

The AT&T Wisconsin contact is Jay Bulanek, (262) 896-7669 office / (414) 491-2855 cell.

Charter Communications has existing overhead communications facilities within the project limits in the following locations:

- An overhead communications line on We Energies' poles beginning at a pole at Station 161TX+47, 47'LT beyond the westerly project limits at 116th Street and running easterly along an alley, crossing 116th Street at Station 161TX+47, and continuing easterly to a pole at Station 161TX+47, 57'RT and then continuing easterly to beyond the project limits. This line will remain in place without adjustment.
- An overhead communications line on We Energies' poles beginning beyond the westerly project limits running easterly along an alley to a pole at Station 165TX+21, 23'LT and continuing easterly, crossing 116th Street at Station 165TX+20, and continuing easterly to beyond the project limits. Prior to construction, Charter Communications will relocate this line in conjunction with a We Energies pole relocation at Station 165TX+21, 29'LT as hereinafter described.

The Charter Communications contact is Beau Abuya, (414) 908-1343 office / (414) 758-9241 cell.

Wauwatosa, City of - Sewer has existing underground sanitary sewer facilities within the project limits in the following locations:

- An existing underground sanitary sewer beginning beyond the westerly project limits at North Avenue and running easterly along the northerly side of North Avenue to a manhole at Station 96NO+66, 45'LT and continuing to a manhole at Station 99NO+70, 45'LT. From there it runs northeasterly to a manhole at Station 163TX+92, 1'RT where it turns and runs northerly along 116th Street to a manhole at Station 164TX+87, 4'LT. From there it runs northeasterly to a manhole at Station 165TX+23, 29'RT where it turns and runs northwesterly to a manhole at Station 165TX+56, 9'LT. From there it runs

northerly along the west side of 116th Street to beyond the project limits. This line will remain in place without adjustment. Adjust manholes as shown in the plans and bid items.

- An existing underground sanitary sewer beginning at a manhole at 116th Street at Station 165TX+23, 29'RT and running easterly along an alley to beyond the project limits. This line will remain in place without adjustment. Adjust manholes as shown in the plans and bid items.
- An existing underground sanitary sewer beginning beyond the westerly project limits at North Avenue and running easterly along the southerly side of North Avenue to a manhole at Station 96NO+27, 35'RT where it turns and runs southerly along 117th Street to beyond the project limits. This line will remain in place without adjustment. Adjust manholes as shown in the plans and bid items.
- An existing underground sanitary sewer beginning at a manhole at Station 97NO+78, 45'RT and running easterly along the southerly side of North Avenue to beyond the project limits. This line will remain in place without adjustment. Adjust manholes as shown in the plans and bid items.
- An existing underground sanitary sewer beginning at a manhole at Station 161TX+06, 16'LT and running southerly to beyond the project limits. This line will remain in place without adjustment. Adjust manholes as shown in the plans and bid items.

City of Wauwatosa - Sewer contact is Mike Maki, (414) 479-8991 office.

Wauwatosa, City of – Street Lighting has existing street light poles and associated underground electric lines throughout the project limits along North Avenue, 116th Street, and 117th Street. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.

The City of Wauwatosa – Street Lighting contact is Randy Michelz, (414) 471-8429 office / (414) 248-0987 cell.

Wauwatosa, City of – Traffic Signals has existing traffic signal facilities at the intersection of North Avenue and 116th Street.

WisDOT will construct new traffic signals on behalf of the City of Wauwatosa at the intersection of North Avenue and 116th Street. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.

The City of Wauwatosa – Traffic Signals contact is Randy Michelz, (414) 471-8429 office / (414) 248-0987 cell.

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

- An existing underground water main beginning beyond the westerly project limits at North Avenue and running easterly along the southerly side of North Avenue to a tee at Station 96NO+64, 53'RT and continuing easterly along the southerly side of North Avenue to a cross at Station 99NO+95, 53'RT and continuing easterly to beyond the project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.
- An existing underground water main beginning beyond the westerly project limits of North Avenue and running easterly along the northerly side of North Avenue to a tee at Station 96NO+74, 53'LT and continuing easterly along the northerly side of North Avenue to a cross at Station 99NO+96, 53'LT and continuing easterly to beyond the project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.
- An existing underground water main beginning at a tee on the southerly side of North Avenue at Station 96NO+64, 53'RT and running southerly along 117th Street to beyond the project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.
- An existing underground water main beginning at a tee on the northerly side of North Avenue at Station 96NO+74, 53'LT and running northerly along 117th Street to beyond the project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.

- An existing underground water main beginning beyond the southerly project limits at 116th Street and running northerly along the center of 116th Street to a cross at 99NO+95, 53'RT. From there it continues northerly, crossing North Avenue at Station 99NO+95, and continuing to a cross at Station 99NO+96, 53'LT and continues northerly along 116th Street to beyond the project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.

The Wauwatosa Water Utility contact is Adam Florin, (414) 471-8480 Ext. 5915.

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

- An overhead electric line beginning at a pole on the west side of 116th Street at Station 161TX+47, 47'LT and running easterly, crossing 116th Street at Station 161TX+46, and continuing to a pole on the east side of 116th Street at Station 161TX+46, 57'RT and continuing easterly beyond the project limits. This line will remain in place without adjustment.
- An overhead electric line beginning beyond the easterly project limits at 116th Street and running westerly along an alley, crossing 116th Street at Station 165TX+20, and continuing to a pole at Station 165TX+21, 23'LT. From there it turns and runs southerly along the west side of 116th Street to a pole at Station 164TX+00, 23'LT. Prior to construction, We Energies relocate the pole at Station 165TX+21, 23'LT to Station 165TX+21, 29'LT. WE Energies will replace the line to the south to the existing pole at Station164TX+00, 23'LT and to the north to the existing pole at Station 166TX+27, 39'LT. The remainder of this line will remain in place without adjustment.
- An underground electric line beginning at a pole at Station 164TX+00, 23'LT and running northwesterly to a transformer and meter at Station 164TX+04, 26'LT. From there it runs southerly and turns westerly to a manhole located in the north terrace area of North Avenue at Station 98NO+88, 52'LT where it turns and runs southerly to a meter serving a Wauwatosa lighting cabinet in the median at Station 98NO+94, 3'LT. We Energies will discontinue these facilities in place and reconstruct new electric services during construction in conjunction with reconstruction of lighting and signal facilities as shown in the plans. Contact Nicholas Welch, (414) 944-5765, of We Energies 10 days prior to disconnecting any existing lighting or signal facilities to coordinate removal and installation of new services.

The We Energies – Electric contact is Nicholas Welch, (414) 944-5765 office / (414) 791-0406 cell.

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

- An underground gas man beginning beyond the westerly limits at North Avenue and running easterly along the southerly side of North Avenue to an elbow at Station 94NO+88, 52'RT and running southerly to an elbow at Station 94NO+88, 62'RT where it turns easterly to a tee at Station 96NO+00, 62'RT. From there it continues easterly behind the southerly right-of-way of North Avenue, crossing 116th Street at Station 162TX+61, and continuing easterly to a tee at Station 162TX+62, 41'RT and continuing easterly to beyond the project limits. This line will remain in place without adjustment.
- An underground gas main beginning beyond the westerly project limits at North Avenue and running along the northerly side of North Avenue to at an elbow at Station 94NO+95, 58'LT and running southerly to an elbow at Station 94NO+95, 33'LT where it turns easterly to a tee at Station 96NO+37, 33'LT. From there it continues easterly along the westbound lanes of North Avenue, crossing 116th Street at Station 163TX+60, and continuing easterly to a tee at Station 100NO+40, 33'LT and continuing easterly to beyond the project limits. This line will remain in place without adjustment.
- An underground gas line beginning at a tee on the west side of 117th Street at Station 96NO+00, 62'RT and running southerly along the westerly right-of-way of 117th Street to an elbow at Station 96NO+00, 132'RT. From there it turns easterly to Station 96NO+11, 132'RT and turns southernly at Station 96NO+11, 132'RT and continuing southernly beyond the project limits. This line will remain in place without adjustment.
- An underground gas main beginning at a tee on the northerly side of North Avenue at Station 96NO+37, 33'LT and running northerly along the westerly right-of-way of 117th Street to an elbow at Station 96NO+37, 111'LT where it turns easterly to Station 96NO+56, 111'LT and turns northerly. It runs northerly along the west side of 117th Street to beyond the project limits. This line will remain in place without adjustment.

- An underground gas main beginning at a tee on the southerly side of North Avenue at Station 162TX+63, 53'LT and running southerly along the westerly right-of-way of 116th Street to an elbow at Station 162TX+20, 53'LT. From there it turns easterly to Station 162TX+20, 40'LT and turns southerly. The line runs southerly along the west side of 116th Street to beyond the project limits. This line will remain in place without adjustment.
- An underground gas main beginning at a tee in the east sidewalk of 116th Street at Station 162TX+62, 41'RT and running southerly along the east sidewalk of 116th Street to an elbow at Station 161TX+96, 41'RT. From there it turns easterly to an elbow at Station 161TX+96, 52'RT where it turns and runs southerly along the easterly right-of-way of 116th Street to an elbow at Station 159TX+61, 53'RT. From there it turns westerly to Station 159TX+61, 46'RT and runs southerly beyond the project limits. This line will remain in place without adjustment. An underground gas main gas line beginning at a tee in the westbound lanes of North Avenue at Station 100NO+40, 33'LT and running northerly along the easterly right-of-way of 116th Street to a tee at Station 165TX+33, 46'RT and continuing northerly to an elbow at Station 165TX+56, 45'RT. From there it turns westerly to Station 165TX+56, 37' and runs northerly beyond the project limits. This line will remain in place without adjustment.
- An underground gas line beginning at a tee on the east side of 116th Street at Station 165TX+33, 46'RT and running westerly, crossing 116th Street at Station 166TX+27, and continuing westerly beyond the project limits. This line will remain in place without adjustment.

WE Energies also has discontinued gas facilities within the project limits in the following locations:

- A discontinued underground gas main beginning at an elbow at Station 94NO+88, 52'RT and running easterly to a tee at Station 96NO+12, 59'RT and continuing easterly to a tee at Station 99NO+47, 59'RT. From there it continues easterly, crossing 116th Street at Station 162TX+68, and continuing to a tee at Station 100NO+32, 58'RT and continuing easterly beyond the project limits.
- A discontinued underground gas main beginning at an elbow at Station 94NO+95, 33'LT and running easterly to a tee at Station 96NO+55, 58'LT and continuing easterly, crossing 116th Street centerline at Station 163TX+85, to a tee at Station 100NO+32, 59'LT, and continuing easterly to beyond the project limits.
- A discontinued underground gas main beginning at a tee on the southerly side of North Avenue at Station 96NO+12, 59'RT and running southerly along the west side of 117th Street to Station 96NO+11, 132'RT.
- A discontinued underground gas main beginning at a bend on the east side of 116th Street Station 159TX+61, 46'RT and running northerly to a bend at Station 165TX+55, 37 RT.

Additionally, We Energies will remove discontinued gas main in conflict with proposed construction in locations where the gas main coating may contain hazardous material. Underground gas mains identified as having potential hazardous material coating are within the project limits in the following locations:

- An 8-inch steel gas main running along the northerly side of North Avenue as previously described.
- A 3-inch steel gas main running along the east side of 116th Street and crossing North Avenue as previously described.

We Energies will remove portions of discontinued gas main with potential hazardous material coatings during construction in construction with construction activities. Allow We Energies 1 day per conflict location for removal of the discontinued main. Contact Nick Ernster, (414) 944-5574, of We Energies 10 days prior to any activity that will expose the existing gas main to coordinate removal activities.

The We Energies - Gas contact is Nick Ernster, (414) 944-5574.

Project 1100-18-73 (Zoo IC, Polymer Overlays, Mainline Bridges)

This contract does not come under the provisions of Administrative Rule TRANS 220.

Due to the Scope of Work, limited utility coordination was performed for this project.

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 statutes. Use caution to maintain the integrity of the utilities. Coordinate with the engineer to adjust plans as needed to avoid any unanticipated utility conflicts.

Project 1100-18-76 (Zoo I/C Overpasses, Various Locations, Var Hwy)

This contract does not come under the provisions of Administrative Rule TRANS 220.

Due to the Scope of Work, limited utility coordination was performed for this project.

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 statutes. Use caution to maintain the integrity of the utilities. Coordinate with the engineer to adjust plans as needed to avoid any unanticipated utility conflicts.

10. Other Contracts.

Coordinate work according to standard spec 105.5.

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

The following projects may be under construction concurrently with the work under this contract. Coordinate activities, detours, work zone traffic control, roadway and lane closures, and other work items as required with other contracts.

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

Project 1060-35-82

USH 45, Zoo IC, N Leg Landscaping

Mayfair Road to Burleigh Street

WisDOT contact: Chris Zacharias; (414) 548-6716

Project 1100-01-77

IH 41 Zoo Freeway

Burleigh Street to Good Hope Road

WisDOT contact: Georgia Vergou; (262) 548-8812

11. Railroad Insurance and Coordination – Soo Line Railroad Company (CP).

A Description

Comply with standard spec 107.17 for all work affecting Soo Line Railroad Company (CP) 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, Standard Insurance Requirements are changed as follows:

Before the department issues its notice to proceed, the contractor shall provide certain insurance coverage to protect the railroad from loss for property and liability exposures relating to the construction activities on the project. The manner and process in which this will be accomplished is as detailed below.

TYPE OF INSURANCE	MINIMUM LIMITS REQUIRED
1. Commercial general liability insurance; shall be endorsed to include blanket contractual liability coverage; shall cover bodily injury and property damage, personal and advertising injury, and fire legal liability. There shall be no endorsements limiting coverage for the work to be performed pursuant to this Stipulation.	$5,000,000 combined single limits per occurrence with an annual aggregate limit of not less than $10,000,000.
2. Workers' compensation and employers' liability coverage.	Workers' compensation limits: statutory limits. Employers' liability limits: Bodily injury by accident $100,000 each accident Bodily injury by disease $500,000 each accident $100,000 each employee
3. Commercial automobile liability insurance; shall cover all owned, non-owned, and hired vehicles used by the contractor in carrying out the contract and shall include coverage for bodily injury and property damage.	$1,000,000 combined single limit per occurrence.
4. Railroad Protective Liability Insurance, issued on a standard ISO form 00 35 10 93 or its equivalent and endorsed to include the Pollution Exclusion Amendment (ISO form CG 28 31 10 93) and the Limited Seepage and Pollution Endorsement. No endorsements restricting FELA coverage may be added.	$5,000,000 per occurrence $10,000,000 in the aggregate

1. The policies for insurance types 1, 2 and 3 must not contain an exclusion for punitive damages.
2. The commercial general liability policy shall include an endorsement that removes any restrictions on coverage regarding work being performed within 50 feet of a railroad or railroad property and an endorsement that removes any exclusion related to explosion, collapse or underground hazard.
3. "FELA: means the Federal Employment Liability Act
4. The contractor may satisfy the requirements for insurance types 1, 2, and 3 through primary insurance coverage or through excess/umbrella policies.

Insurance is filed in the name of Soo Line Railroad Company d/b/a Canadian Pacific.

Notify evidence of the required coverage, and duration to Brian Osborne, Manager Public Works; Canadian Pacific Plaza, 120 South 6th Street, Suite 700, Minneapolis, MN 55402; Telephone (612) 330-4555; E-mail: brian_osborne@cpr.ca

Also send a copy to the following: Paul Derksen, SE Region Railroad Coordinator; 141 N. W. Barstow Street, Waukesha, WI 53188; Telephone (262) 548-8770; E-mail: paul.derksen@dot.wi.gov.

Include the following information on the insurance document:

- Project ID: 1060-33-84
- Project Location: Wauwatosa WI
- Route Name: IH41/USH 45, Milwaukee County
- Crossing ID: ID 390506M
- Railroad Subdivision: Watertown Sub
- Railroad Milepost: 92.8
- Work Performed: Reconstruct Roadway Structure over CPRR

A.2 Train Operation

Approximately 2 passenger trains and 21 through freight trains operate daily through the construction site. Passenger trains operate at up to 55 mph. Through freight trains operate at up to 50 mph.

A.3 Names and Addresses of Railroad Representatives for Consultation and Coordination

Construction Contact

Brian Osborne, Manager Public Works; Canadian Pacific Plaza, 120 South 6th Street, Suite 700, Minneapolis, MN 55402; Telephone (612) 330-4555; E-mail brian_osborne@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.

Flagging Contact

Matthew R. Miller, Supervisor of Public Works; Canadian Pacific Plaza, 120 South 6th Street, Suite 700, Minneapolis, MN 55402; Telephone (612) 330-4556; E-mail Matthew_miller@cpr.ca Reference the Crossing ID, Wisconsin Milepost and Subdivision found in A.1.

* Contact Soo Line (CP) prior to letting for flagman work hour availability.

Cable Locate Contact

In addition to contacting Diggers Hotline, contact CP Call Before You Dig line at (866) 291-0741, five working days before the locate is needed. Reference the Crossing ID, Wisconsin Milepost and Subdivision found in A.1.

Soo Line (CP) will only locate railroad owned facilities located in the railroad right-of-way. The railroad does not locate any other utilities.

A.4 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. none

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.5 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 at least 40 days prior to the time it is desired to have the crossing installed.

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:

1. Cranes swinging (including length of boom/outriggers and /or appurtenances) or handling materials or equipment within 25 feet of the centerline of any track.
2. 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.
3. Excavation, tunneling, blasting, pile driving, placing, or removing cofferdams or sheeting, or similar activities that might cause the railroad's tracks or buildings to be undermined, heaved out of normal level, shifted out of alignment, or otherwise impaired.
4. Bridge painting activities including rigging of falsework, scaffolding or similar activities over railroad tracks.
5. Deck removal activities over railroad tracks.
6. Pouring of bridge decks in spans over an operated track.
7. 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.

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 (4) 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 40 business days before starting work near a track. Provide the specific time planned to start the operations.

Work that requires railroad flaggers to occupy the work zone for longer duration or longer than the normal work day will require 40 day written notice to the railroad.

C.2 Rates - Soo Line Railroad Company (CP)

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

- $1,000 daily rate for an eight-hour day (including wages, labor surcharges, meals, lodging, vehicle and mileage expenses),
- $1,200 daily rate for an eight-hour day on Saturdays, Sundays or holidays (including wages, labor surcharges, meals, lodging, vehicle and mileage expenses),
- $150 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.

If a flagger must be relieved due to hours of service requirements, arrangements will be made for a relief flagger.

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:

1. Additional flagging requirements imposed by the railroad beyond the flagging requirements provided in subsection B above due to violations by the contractor.
2. 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

The department will pay for the department's portion of flagging reimbursement as specified in section C of this provision under the following item:

ITEM NUMBER	DESCRIPTION	UNIT
801.0117	Railroad Flagging Reimbursement	DOL

The reimbursement payment, as shown on the Schedule of Items, is solely for department accounting purposes. Actual flagging costs will vary based on the contractor's means and methods.

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

D Rail Security Awareness and Contractor Orientation

Prior to entry on railroad right-of-way, the contractor shall arrange for on-line security awareness and contractor orientation training and testing and be registered through "e-RAILSAFE" for all contractor and subcontractor employees working on railroad right-of-way. See e-railsafe.com "Information". The security awareness and contractor orientation training is shown under the railroad's name.

The department has secured right of entry to railroad property; neither the contractor nor subcontractors or their employees will be required to sign a right of entry form.

The security awareness and contractor orientation certification is valid for 2 year(s) and must be renewed for projects that will carry over beyond the 2 year period. Contractor and subcontractor employees shall wear the identification badge issued by e-RAILSAFE when on railroad right-of-way. Costs associated with training and registration are incidental to other items in the contract.

stp-107-034 (20190717)

12. Railroad Insurance and Coordination – Union Pacific Railroad.

A Description

Comply with standard spec 107.17 for all work affecting Union Pacific Railroad Company (UPRR) 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 UPRR with the Wisconsin Department of Transportation, its officers, agents and employees named as an additional insured.

Notify evidence of the required coverage, and duration to:

Contact: Chris Keckeisen
Engineering Design – Public Projects
Union Pacific Railroad Company
1400 Douglas Street – Stop 0910
Omaha, NE 68179-0910
Telephone: (402) 544-5131
Email ctkeckei@up.com

Include the following information on the insurance document:

Project ID – 1060-33-84
Route Names – ZOO IC – IH 41
Crossing IDs – 177262X
Railroad Subdivision – Milwaukee
Railroad Mileposts 91.84

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.

Item #1: First Track Shift Connection.

- The railroad will sever and remove from service the existing double mainline tracks north and south of the existing bridge crossing.
- The railroad will shift to 13' clear zone locations and reconnect the severed double mainline tracks to the temporary shoofly double mainline tracks constructed by the contractor outside the 13' clear zone locations on the temporary shoofly alignment west of the existing bridge crossing. The contractor will install a 136 lb to 115 lb Compromise Transition Rail or 136 lb to 112 lb Compromise Transition Rail at all ends of new double mainline tracks, so that the railroad can perform the track shift of the existing rail and make the connection to the new double mainline tracks.
- The railroad will surface the existing tracks and connections to final horizontal and vertical alignments as shown on the plans for all track outside the contractor work zone. (The contractor will line and surface the temporary shoofly track to within 1/8" of the profile indicated on the plans.)

Item #2: Second Track Shift Connection.

- The railroad will sever and remove from service the temporary shoofly double mainline tracks north and south of the temporary bridge crossing.
- The railroad will shift to 13' clear zone locations and reconnect the severed double mainline tracks to the new double mainline tracks constructed by the contractor outside the 13' clear zone locations on the new alignment east of the temporary bridge crossing. The contractor will install a 136 lb to 115 lb Compromise Transition Rail or 136 lb to 112 lb Compromise Transition Rail at all ends of the new double mainline tracks, so that the railroad can perform the track shift of the temporary shoofly rail and make the connection to the new double mainline tracks.
- The railroad will surface the existing tracks and connections to final horizontal and vertical alignments as shown on the plans for all track outside the contractor work zone. (The contractor will line and surface the new track to within 1/8" of the profile indicated on the plans.)

A.3 Names and addresses of Railroad Representatives for Consultation and Coordination
Contact for consultation on railroad requirements during construction:

Chris Keckeisen
Engineering Design – Public Projects
Union Pacific Railroad Company
1400 Douglas Street – Stop 0910
Omaha, NE 68179-0910
Telephone: (402) 544-5131
E-mail: ctkeckei@up.com

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.

The contractor shall notify the above railroad contact in writing within 10 days of contract execution to verify the advance notice required and time needed for the railroad to complete each item listed in subsection A.2 as required by the railroad. The contractor shall provide no less than 90 days written advance notice for each item listed in subsection A.2, so that the railroad can perform the work described. The contractor shall provide written schedule updates to the railroad at 60 days and 30 days prior to the proposed track shift date.

A.4 Temporary Grade Crossing
The department has not made arrangements for temporary grade crossings to be installed by the railroad Contact the railroad representative named in A.3 90 days prior to the time it is desired to have the crossing installed.

A.5 Train Operation
Approximately 20-25 freight trains operate daily through the construction site. Through freight trains operate at up to 40 mph. In addition to through movements there are switching movements at slower speeds.

Railroad operations may vary from estimates provided above. It is the responsibility of the contractor to coordinate with the railroad the amount of time available to work and the time lost due to trains. No claims for delay due to railroad activities will be allowed.

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 0 inches (3.658 m) plus 1.5 inches (38 mm) per degree of track curvature, measured horizontally from any active track center line.

Provide 21 feet 6 inches (6.553 m) plus compensation for super-elevated track, measured vertically above the top of the highest rails for any active track.

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:

1. Cranes swinging or handling materials or equipment within 25 feet of the centerline of any track.
2. 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.
3. 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.
4. Bridge painting activities including rigging of falsework, scaffolding or similar activities within 25 feet of the centerline of any track.
5. Deck removal activities within 25 feet of the centerline of any track.
6. Pouring of bridge decks in spans over an operated track.
7. 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.

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 (4) 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. Verify the railroad's requirements for anticipated costs incurred by railroad employees, including on-site time, drive time, and other expenses included in work. 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 7 business days before starting work near a track. Provide the specific time planned to start the operations.

Extended Duration Work or Longer Work Day (to be used when requiring a flagger for longer periods of time, 4-weeks or more, or working longer than an 8-hour work day, or as defined in section B.1.)

Work that requires railroad flaggers to occupy the work zone for longer duration or longer than the normal work 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:

$700 daily rate for an eight-hour day (including wages, labor surcharges, lodging, vehicle and mileage expenses)

$1500 "Rest Time" or nightly rate for weekday overnight work for an eight-hour day (including wages, labor surcharges, lodging, vehicle and mileage expenses)

$1050 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)

$125 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:

1. Additional flagging requirements imposed by the railroad beyond the flagging requirements provided in subsection B above due to violations by the contractor.
2. 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 administrative item. 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.

D Rail Security Awareness and Contractor Orientation
Prior to entry on UPRR right-of-way, arrange for on-line security awareness and contractor orientation training and testing and be registered through "e-RAILSAFE" for all contractor and sub-contractor employees working on railroad right-way. Contact e-railsafe.com. The security awareness and contractor orientation training is shown at "Union Pacific Railroad, Norfolk Southern Railway, Conrail ERS Account." The security awareness and contractor orientation courses must be completed annually. Contractor and

sub-contractor employees shall wear the identification badge issued by e-RAILSAFE when on railroad right-of-way. Costs associated with these courses are incidental to other items in the contract.

13. Railroad Insurance and Coordination – Union Pacific Railroad Company.

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 David C. LaPlante, Senior Manager-Real Estate-Special and Public Projects, 1400 Douglas St. STOP 1690, Omaha, NE 68179; Telephone: (402) 544-8563; E-mail: dclaplante@up.com.

Also send a copy to the following: Paul Derksen, SE Region Railroad Coordinator; 141 N. W. Barstow Street, Waukesha, WI 53188; Telephone (262) 548-8770; E-mail: paul.derksen@dot.wi.gov.

Include the following information on the insurance document:

- Project ID: 1060-33-84
- Work Performed: Reconstruct UPRR structure over IH41. Resurface North Ave under UPRR.

#	Route Name	City/County	Crossing ID	RR Subdivision	RR Milepost
	IH41/USH 45	Wauwatosa, Milwaukee Co	177 262X	Milwaukee Sub	91.84
	North Ave.	Wauwatosa, Milwaukee Co	177 263E	Milwaukee Sub	92.07

- Project ID: 1100-18-73
- Work Performed: Polymer overlay of highway structure over UPRR. Traffic control within UPRR Right-of-Way.

#	Route Name	City/County	Crossing ID	RR Subdivision	RR Milepost
	IH 894	West Allis, Milwaukee Co	177254F	Milwaukee Sub	88.43
	IH 94	West Allis, Milwaukee Co	177257B	Milwaukee Sub	89.91

- Project ID: 1100-18-76
- Work Performed: Placement of Traffic Control Devices

#	Route Name	City/County	Crossing ID	RR Subdivision	RR Milepost
	STH 100- Mayfair Rd	Wauwatosa, Milwaukee County	177258H	Milwaukee Sub	90.29
	STH 59- Greenfield Ave	West Allis, Milwaukee County	177255M	Milwaukee Sub	89.07

A.2 Train Operation

Approximately 20 through freight trains operate daily through the construction site. Through freight trains operate at up to 40 mph.

A.3 Names and Addresses of Railroad Representatives for Consultation and Coordination

Construction Contact

Chris T. Keckeisen, Manager Special Projects - Industry & Public Projects Engineering Department; 1400 Douglas, MS 0910, Omaha, NE, 68179; Telephone (402) 5445131; E-mail ctkeckei@up.com or Richard Ellison, Project coordinator, 207 Powell Avenue, Labadie, MO, 63055; Telephone (847) 323-7197; E-mail richardellison@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.

Flagging Contact

See Construction Contact. If more than 30 days of flagging is required contact UP 30 days prior to needing a flagger on site. Reference the Wisconsin Milepost and Subdivision located in A.1.

Cable Locate Contact

In addition to contacting Diggers Hotline, contact the UP Call Before You Dig line at (800) 336-9193 at least five working days before the locate is needed. Normal business hours are 6:30 AM to 6:30 PM, Central Time, Monday through Friday, except holidays and are subject to change. Calls will be routed at all times in case of an emergency. Reference the Wisconsin Milepost and Subdivision located in A.1.

UP will only locate railroad owned cable buried in the railroad right-of-way. The railroad does not locate any other utilities.

A.4 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. None

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.5 Temporary Grade Crossing

The department has not made arrangements for a temporary grade crossing to be installed by the railroad. Contact the railroad representative named in A.3 at least 90 days prior to the time it is desired to have the crossing installed.

A.6 Temporary Clearances During Construction

Construction Contact

Chris T. Keckeisen, Manager Special Projects - Industry & Public Projects Engineering Department; 1400 Douglas, MS 0910, Omaha, NE, 68179; Telephone (402) 5445131; E-mail ctkeckei@up.com or Richard Ellison, Project coordinator, 207 Powell Avenue, Labadie, MO, 63055; Telephone (847) 323-7197; E-mail richardellison@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.

Flagging Contact

See Construction Contact. If more than 30 days of flagging is required contact UP 30 days prior to needing a flagger on site. Reference the Wisconsin Milepost and Subdivision located in A.1.

Cable Locate Contact

In addition to contacting Diggers Hotline, contact the UP Call Before You Dig line at (800) 336-9193 at least five working days before the locate is needed. Normal business hours are 6:30 AM to 6:30 PM, Central Time, Monday through Friday, except holidays and are subject to change. Calls will be routed at all times in case of an emergency. Reference the Wisconsin Milepost and Subdivision located in A.1.

UP will only locate railroad owned cable buried in the railroad right-of-way. The railroad does not locate any other utilities.

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:

1. Cranes swinging (including length of boom/outriggers and /or appurtenances) or handling materials or equipment within 25 feet of the centerline of any track.
2. 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.
3. Excavation, tunneling, blasting, pile driving, placing, or removing cofferdams or sheeting, or similar activities that might cause the railroad's tracks or buildings to be undermined, heaved out of normal level, shifted out of alignment, or otherwise impaired.
4. Bridge painting activities including rigging of falsework, scaffolding or similar activities over railroad tracks.
5. Deck removal activities over railroad tracks.
6. Pouring of bridge decks in spans over an operated track.
7. 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.

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 (4) 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 40 business days before starting work near a track. Provide the specific time planned to start the operations.

Work that requires railroad flaggers to occupy the work zone for longer duration or longer than the normal work 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:

- $1,000 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)
- $1,260 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)
- $150 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 railroad will require pre-payment. 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:

1. Additional flagging requirements imposed by the railroad beyond the flagging requirements provided in subsection B above due to violations by the contractor.
2. 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

The department will pay for the department's portion of flagging reimbursement as specified in section C of this provision under the following item:

ITEM NUMBER	DESCRIPTION	UNIT
801.0117	Railroad Flagging Reimbursement	DOL

The reimbursement payment, as shown on the Schedule of Items, is solely for department accounting purposes. Actual flagging costs will vary based on the contractor's means and methods.

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

D Rail Security Awareness and Contractor Orientation

Prior to entry on railroad right-of-way, the contractor shall arrange for on-line security awareness and contractor orientation training and testing and be registered through "e-RAILSAFE" for all contractor and subcontractor employees working on railroad right-of-way. See e-railsafe.com "Information". The security awareness and contractor orientation training is shown under the railroad's name.

The department has secured right of entry to railroad property; neither the contractor nor subcontractors or their employees will be required to sign a right of entry form.

The security awareness and contractor orientation certification is valid for 2 year(s) and must be renewed for projects that will carry over beyond the 2 year period. Contractor and subcontractor employees shall

wear the identification badge issued by e-RAILSAFE when on railroad right-of-way. Costs associated with training and registration are incidental to other items in the contract.

stp-107-034 (20190717)

14. 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). Allow a minimum of four weeks for UPRR review of all submittals and each required resubmittal.

B Request for Information / Clarification

All requests for information (RFI) involving work within UPRR right-of-way shall be according to the procedures listed elsewhere in the special provisions. Submit all RFI's to the engineer one week before the submittal to UPRR. Allow the minimum review time listed in subsection A above for UPRR's review and each required resubmittal after receipt by the UPRR engineer from the engineer. Do not proceed with information or clarifications without approval of both the engineer and the UPRR engineer.

C Plans / Specifications

UPRR has approved all UPRR-related work in the contract documents. Submit any UPRR-related changes and clarifications of the contract documents to the engineer one week before the submittal to UPRR. Allow the minimum review time listed in subsection A above for UPRR's review and each required resubmittal after receipt by the UPRR engineer from the engineer. Do not proceed with revisions without approval of both the engineer and the UPRR engineer.

D Construction Submittals

Electronically submit all required construction submittals via email as pdf files along with any review comments to the engineer. When submitting by email, subject title shall be consistent for a specific submittal throughout the UPRR approval process. For example:

UP over US 45 MP 91.84 Milwaukee Sub (Permanent) (_____)

UP over US 45 MP 91.84 Milwaukee Sub (Temporary) (_____)

Retaining Wall South of US 45 MP 91.77 Milwaukee Sub (_____)

End subject title with type of submittal. For 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.

Submit all construction submittals to the engineer one week before the submittal to UPRR. Allow the minimum review time listed in subsection A above for UPRR's review and each required resubmittal after receipt by the UPRR engineer from the engineer. Do not proceed with work described in the submittals without approval of both the engineer and the UPRR engineer.

The engineer and the UPRR engineer may review the submittals. If the UPRR engineer or the engineer finds a submittal insufficient, make all required changes and resubmit it to both the UPRR engineer and the engineer. 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.

Item	Description of Submittal Item	Notes
1	Shoring Design and Details	
2	Falsework Design and Details	
3	Erosion Control	Temporary and permanent
4	Drainage Design Provisions	Temporary and permanent
5	Erection Diagrams and Sequence	
6	Demolition Diagram and Sequence	
7	Shop Drawings	Steel and concrete members.
8	Precast Modular Wall	Des. dwgs, calcs & reports
9	Bearings	For all structures.

Item	Description of Submittal Item	Notes
10	Concrete Mix Designs	For all structures.
11	Waterproofing Material Certifications & Installation Procedure	Waterproofing and protective boards.
12	Structural Steel & Rebar Certifications	All fracture critical members and other members requiring improved notch toughness.
13	Fabrication and Test Reports	All fracture critical members and other members requiring improved notch toughness.
14	Welding Procedures and Welder Certification	AWS Requirements.
15	Foundation Construction Reports	Pile driving, drilled shaft construction, bearing pressure test reports for Precast Modular Wall
16	Compaction Testing Reports for Backfill	Reference UPRR Embankment Articles
17	28 day Cylinder Test of Concrete Strength	
18	Construction Phasing Plan	
19	Project Close-Out Documents	
20	Other project-specific information as requested by UPRR	

Whenever work may affect the operations or safety of trains, submit to the UPRR engineer and copy the engineer for review. Review by UPRR shall not relieve the contractor from liability.

E Infringement On Minimum Clearances

Contractor will submit requests for infringement upon the minimum horizontal or vertical clearance requirements, as stated in “Railroad Insurance and Coordination – Union Pacific Railroad” article in these special provisions. The contractor will submit the requests to the UPRR engineer and copy the engineer. Do not infringe upon the minimum clearances unless they are first approved in writing by the UPRR engineer.

F Approval of Details

Once approval is obtained by the UPRR engineer, the contractor shall provide written approval to the engineer before undertaking such work.

G Site Inspections By UPRR

UPRR may make site inspections at any time. Provide the UPRR engineer a schedule of anticipated dates for the following activities and copy the engineer.

Pre-construction conference

Shoring

Drilled shaft construction

Foundation installation

Reinforcement and concrete placement for concrete work

Shop observation of fabricated steel spans by the railroad or its designated representative

Erection of superstructure

Placement and acceptance of waterproofing prior to placing ballast

Completion of the bridge structure

Track section construction

Acceptance observation of shoofly before placing it in service

Demolition

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). The GTS is 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 or at http://www.up.com/customers/ind-dev/operations/specs/

15. Hauling Restrictions.

Replace standard spec 107.2 with the following:

Approved local street haul routes are shown on the Traffic Control – Local Road Haul Routes Detail.

If additional haul routes are needed that are not shown on the Traffic Control – Local Road Haul Routes Detail, 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.

~~sef-107-015 (20170310)~~

16. 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 Chris Zacharias at (414) 548-6716.

stp-107-054 (20080901)

17. Information to Bidders, WPDES General Construction Storm Water Discharge Permit.

The department has obtained coverage through the Wisconsin Department of Natural Resources to discharge storm water associated with land disturbing construction activities of this contract under the Wisconsin Pollutant Discharge Elimination System General Construction Storm Water Discharge Permit (WPDES Permit No. WI-S066796-1). A certificate of permit coverage is available from the regional office by contacting Chris Zacharias at (414) 548-6716. Post the permit in a conspicuous place at the construction site.

stp-107-056 (20180628)

18. 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 before 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. Guidelines from the Wisconsin Department of Natural Resources for disinfection are available at:

http://dnr.wi.gov/topic/invasives/disinfection.html

Use the following inspection and removal procedures:

1. Before 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 before leaving the area or invested waters; and
4. Disinfect your boat, equipment and gear by either:
    4.1. Washing with ~212 F water (steam clean), or
    4.2. Drying thoroughly for five days after cleaning with soap and water and/or high pressure water, or
    4.3. 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.

stp-107-055 (20130615)

19. 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 petroleum-and metals-contaminated soil (bioremediation at a landfill) and reuse of foundry sand and low-level petroleum-contaminated soil 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.

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 - Fill soils that have no obvious visual or olfactory contamination and may not have been analyzed for contaminants. - 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. - 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 - Petroleum contaminated soil - 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 & Landfill's approvals.

20. Erosion Control

Add the following to standard spec 107.20 as paragraphs nine through fifteen:

(9) Erosion control best management practices (BMP's) the plans show are at suggested locations. The actual locations shall be determined by the contractor's ECIP and by the engineer. Include each dewatering (mechanical pumping) operation in the ECIP submittal. The ECIP shall supplement information the plans show and not reproduce it. The ECIP shall identify how to implement the project's erosion control plan. ECIP shall 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 exposure to possible erosion.

(10) Provide the ECIP 14 days before 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) 507-4946, Kristina.Betzold@Wisconsin.gov). Do not implement the ECIP until department approval, and perform all work conforming to the approved ECIP.

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

(12) Stockpile excess materials or spoils on upland areas away from wetlands, floodplains, and waterways. Install perimeter silt fence protection around stockpiles within a timeframe acceptable to the engineer. If stockpiled materials will be left for more than 14 days, install temporary seed and mulch or other temporary erosion control measures the engineer orders.

(13) Re-apply topsoil on graded areas, as designated by the engineer, within a timeframe acceptable to the engineer 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 and mulch.

(14) Do not allow 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. Before each dewatering operation, submit to the department a separate ECIP amendment describing in words and pictorial format an appropriate BMP for sediment removal, conforming 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.

(15) Dewatering is paid separately.

sef-107-010 (20180104)

The project ECIP should detail how erosion control devices shown in the plan set will be implemented for the worksite. Additional devices may be needed based on sequence of operations and field conditions. A ‘staged’ ECIP may be required for this project, as new areas are disturbed. Each new ‘stage’ of the ECIP needs to be submitted to the project staff and the WDNR liaison for review as an amendment to the ECIP with a standard 14-day review period. Work should not commence in new areas until the project staff and WDNR has reviewed and concurred with the corresponding ECIP amendment.

All disturbed areas should be adequately protected and restored as soon as feasible. Any disturbed area that will not be ‘re-worked’ for 14 days or more should be temporary seeded and mulched to prevent offsite erosion. The project team may identify ‘sensitive’ areas in the field that require additional temporary stabilization to protect resources from being contaminated by sediment-laden water discharging from the work site. Any ‘release’ of sediment-laden water from the work site that enters a wetland or waterway should be reported to the WDNR liaison within 24 hours.

If dewatering is required for any reason, the water must be pumped into a properly selected and sized dewatering basin before the clean/filtered water is allowed to enter any waterway or wetland. The basin must remove suspended solids and contaminants to the maximum extent practicable. A properly designed and constructed dewatering basin must take into consideration maximum pumping volume (gpm or cfs) and the sedimentation rate for soils to be encountered. Do not house any dewatering technique in a wetland or floodplain.

The contractor should restrict the removal of vegetative cover and exposure of bare ground to the minimum amounts necessary to complete construction. Restoration of disturbed soils should take place as soon as conditions permit. If sufficient vegetative cover will not be achieved because of late season construction, the site must be properly winterized. A plan for ‘over-wintering’ the project or a specific project area should be compiled and submitted to the project staff and WDNR for review in an amendment to the ECIP.

All temporary stock piles must be in an upland location and protected with erosion control measures (e.g. silt fence, rock filter-bag berm, etc.). Proposed stockpile locations should be included in the ECIP. Do not stockpile fill or other construction materials in or adjacent to wetlands, waterways or floodplain.

The DOT Select Site process must be adhered to for clean fill or any other material that leaves the work site. The project staff and the WDNR liaison will review all proposed select sites and a site visit may be required. Filling of wetlands, waterways or floodplain is not allowed under the select site process, unless the site owner has proof of required local/state/federal permits. No new impermeable surfaces can be left at a select site (including gravel roads or pads), unless the site owner attains required permits. Contaminated materials leaving the site need to adhere to the Hazardous Material Management Plan.

Construction materials and debris, including fuels, oil, and other liquid substances, will not be stored in the construction area in a manner that would allow them to enter a wetland or waterbody as a result of spillage, natural runoff, or flooding. If a spill of any potential pollutant should occur, it is the responsibility of the permittee to remove such material, to minimize any contamination resulting from this spill, and to immediately notify the State Duty Officer at 1-800-943-0003.

Construction of structure over navigable waterways shall be completed as quickly as possible in order to minimize disruption. Construction shall minimize the removal of shoreline vegetation below the ordinary high water mark (OHWM), unless otherwise directed by the WDNR Transportation Liaison. Construction

equipment should not operate on the bed of the stream or below the OHWM, except for that which is necessary for the placement of the structure. The contractor must provide a means of separating the live flow channel of the waterway from disturbed areas (cofferdam, turbidity barrier, etc.). Any plan for diverting the flow of a navigable waterway (listed under Fish Spawning provision) needs to be submitted, reviewed and approved by the project staff and the WDNR liaison.

When performing concrete or asphalt sawcutting operations, the slurry shall be squeegeed off to the shoulder gravel or shoveled into the gravel behind curbs and not allowed into storm sewers, ditches, waterways or wetlands.

21. Erosion Control Structures.

Within three calendar days after completing the excavation for a substructure unit, place riprap or other permanent erosion control items required by the contract or deemed necessary by the engineer around the unit at a minimum 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 the engineer directs.

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.

stp-107-070 (20191121)

22. Health and Safety Requirements for Workers Remediating Petroleum Contamination.

Add the following to standard spec 107.1(2):

Soil contamination with gasoline, diesel fuel, fuel oil, or other petroleum related products may be encountered during excavation activities. Prepare a site specific Health and Safety Plan complying with the Occupational Safety and Health Administration (OSHA) standard for Hazardous Waste Operation and Emergency Response (HAZWOPER), 29 CFR 1910.120.

All site workers taking part in remediation activities or who will have the reasonable probability of exposure of safety or health hazards associated with the hazardous material shall have completed Health and Safety training that meets OSHA requirements. Before the start of remediation work, submit to the engineer a site specific Health and Safety Plan, and written verification that workers will have completed up-to-date OSHA training.

Develop, delineate, and enforce the health and safety exclusions zones for each contaminated site location pursuant to 29 CFR 1910.120.

stp-107-115 (20150630)

23. 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.

stp-107-001 (20060512)

24. Notice to Contractor – Personnel Identification Program.

All contractor personnel will be required to register in the program prior to performing work. Valid photo identification which includes unexpired driver’s license, government issued identification cards, military identification, passport, or other identification approved by the department will be required to register. All personnel registered will be issued a hard sticker with an identification number by the department. Stickers shall be placed in a visible location on the hard hat.

Noncompliance with this contract provision may result in removal of contractor personnel from the project or suspension of work according to Wisconsin Department of Transportation Standard Specification 108.6 applicable under the contract.

25. Notice to Contractor – Media Relations.

a) The contractor shall not disseminate or publicize this Agreement, information relating to this Agreement, their work responsibilities, or generally comment about the entire project without prior written consent from one of the department's designated Project Communications Leaders listed under Section (d).

b) The contractor shall refer all information requests or interview requests made by external parties, including media sources, to all of the department's designated Project Communications Leaders listed under Section (d).

c) The contractor agrees to coordinate with the department as to the form, content and timing of any public announcement of this Agreement.

d) The Project Communications Leaders for the department shall be:

i. The department's project manager

ii. Becky Kikkert
4802 Sheboygan Avenue
Madison, WI 53705
Phone: (608) 266-3581
Email: rebecca.kikkert@dot.wi.gov

iii. Michael Pyritz
141 NW Barstow Street
P.O. Box 798
Waukesha, WI 53188
Phone: (262) 521-5373
Email: michael.pyritz@dot.wi.gov

e) Noncompliance with this contract provision may result in removal of contractor personnel from the project or suspension of work according to Wisconsin Department of Transportation standard spec 108.6 applicable under the contract.

f) Notwithstanding anything to the contrary contained herein, no provision of this Agreement shall be interpreted to impede the contractor, or any individual, from reporting possible violations of state or federal law to any governmental agency or entity, or from making other disclosures under the whistleblower provisions of state or federal law. The contractor does not need the prior authorization of the department to make any such reports or disclosures and the contractor shall not be required to notify the department that such reports or disclosures have been made.

26. Notice to Contractor – Safety.

All workers shall wear OSHA and ANSI compliant safety head protection, safety glasses, safety-toe protective footwear, and an ANSI 107-2015 Type R, Class 2 safety vest and at all times while within the project footprint. ANSI 107-2015 Type R, Class E safety pants will be required from dusk until dawn while in the project footprint.

The contractor and respective subcontractors shall provide a copy of their current Company Safety Plans to the department at the preconstruction meeting. All workers shall comply with the Safety Plans of their employer. The department will not issue a notice to proceed until all safety plans have been submitted.

Noncompliance with this contract provision may result in removal of contractor personnel from the project or suspension of work according to Wisconsin Department of Transportation standard spec 108.6 applicable under the contract.

27. Notice to Contractor – Milwaukee County Transit System.

The Milwaukee County Transit System (MCTS) operates the following bus routes within the construction limits: 28, 31, 60, 79, and 85. 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.

Notify MCTS at least 10 business days prior to beginning work. If necessary, MCTS will remove their existing bus stop signs and shelters before work begins and re-install or replace bus stop signs and shelters before new pavement opens to vehicular traffic. The contractor shall provide temporary bus stops with ADA compliant pedestrian accommodations, to be paid under separate bid item. Temporary bus stops must be connected to the sidewalk network when one is available. MCTS will provide temporary bus stop signs.

The MCTS contacts are:

Melanie Flynn
Milwaukee County Transit System – Routes
1942 N. 17th St.
Milwaukee, WI 53205
Phone: (414) 343-1764
Mflynn@MCTS.org

Andy Tillman
Milwaukee County Transit System – Bus Stops
1942 N. 17th St.
Milwaukee, WI 53205
Phone: (414) 343-1728
Atillman@MCTS.org

David Locher
Transportation Specialist
Phone: (414) 343-1727
Dlocher@MCTS.org

SER-107-004 (20180413)

28. Notice to Contractor – Airport Operating Restrictions

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

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

If required by the Notice Criteria tool, and for all 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.

Contact Levi Eastlick, (608)-267-5018, WisBOA airspace/tall structure manager for assistance submitting forms.

sef-107-020 (20171004)

29. Notice to Contractor – Environmental Sampling of Existing UPRR Track Section.

Notify the UPRR engineer and the engineer two weeks prior to clearing and grubbing the existing UPRR track section. Provide the engineer (or the engineer's environmental consultant) access to the existing UPRR track section to core samples and/or excavate test pits prior to construction of B-40-878 temporary or permanent structures or R-40-622. Coordinate all excavation based on the results of this testing.

30. Notice to Contractor – Disposal of Treated Railroad Ties and Treated Timber Pilings.

Treated wood is a regulated solid waste per NR 500 of the Wisconsin Administrative Code. Waste railroad ties and timber pilings 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 – Possible Additional Asbestos Containing Material under Ballast on B-40-137.

Notify the UPRR engineer and the engineer two weeks prior to removing ballast from existing bridge B-40-137. After the ballast is removed, provide the engineer access to the waterproofing material on top of the bridge deck to test for asbestos. If asbestos containing material is present, allow two weeks for the department to remove the asbestos containing material.

32. Notice to Contractor – Contamination Beyond Construction Limits.

The department completed testing for soil contamination at locations within this project where excavation is required. Testing indicated that petroleum-contaminated soil is not present at the locations tested within the project limits but may be present beyond the project limits at the following locations:

1. Station 95NO+00 to 96NO+60, beyond project limits left (Regency Commons Property, 11702 W. North Ave., WDNR BRRTS No. 03-41-552701, WDNR FID No. 341167640, Closed LUST Site).
2. Station 165TX+25 to 166TX+50, beyond project limits left (Roger Ruehs Property at 2323 N. 116th St., WDNR BRRTS No. 03-41-001965, WDNR FID No. 241554390, Closed LUST Site).

Contaminated soil and/or groundwater at the above sites is expected to be beyond the excavation limits necessary to complete the work under this project. Control construction operations at these locations to ensure that they do not extend beyond the excavation limits indicated in the plans. If contaminated soil and/or groundwater are encountered at 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
WisDOT SE Region
141 NW Barstow St.
Waukesha, WI 53187
(262) 548-6705

33. 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-999-040 (20160915)

34. Traffic Meetings and Traffic Control Scheduling.

Every Wednesday by 10:00 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 between 11:00 - 11:30 AM on Wednesdays at the project field office 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 11:00 AM meeting.

Every Wednesday at 2:00 PM, or as scheduled by the engineer, 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.

Obtain approval from the engineer for any mid-week changes to the closure schedule. Revise the 2-week look-ahead as required and obtain engineer approval.

sef-643-040 (20150319)

35. Material and Equipment Staging

Submit a map showing all proposed material stockpile and equipment storage locations to the engineer 14 calendar days before either the preconstruction conference or proposed use, whichever comes first. Identify the purpose; length, width and height; and duration of material stockpile or equipment storage at each location. Obtain written permission and necessary permits from the property owner and local governments/agencies and submit two copies to the engineer. Do not stockpile material or store equipment until the engineer approves. Do not stockpile or store materials or equipment on wetlands.

SER-107-011 (20181019)

36. BIM for Infrastructure Model Specification for Zoo Interchange North Leg Projects.

Abbreviations

WisDOT SE Region (Department) defines terms within this special provision as follows:

BIM	Building Information Model
CAD	Computer-aided Design
GIS	Geographic Information Systems
PMM	Project Modeling Matrix
LOA	Level of Accuracy
LOD	Level of Development (2D/3D/4D/5D/xD)
PS&E	Plans, Specifications, and Estimates
AMG	Automated Machine Guidance
PMM	Project Modeling Matrix
RD	Radio Detection
GPR	Ground Penetrating Radar
SPAR	Subsurface Signal Location Coupled with GNSS Survey
EMI	Electromagnetic Induction
ASC	ASCII Text File Format
CSV	Comma Separated Value File Format for Microsoft Excel Spreadsheet for Survey Layout
DWG	Autodesk Proprietary File Format for CAD Data
DGN	Bentley Proprietary File Format for CAD Data
XML	Non-Proprietary File Format for Exchanging Geometry-centric 3D Data
IFC	Industry Foundation Class File Format
GNSS	Global Navigation Satellite System used to pinpoint geographic locations worldwide
ROW	Right-of-Way
DTM	Digital Terrain Model
DSM	Digital Surface Model
TIN	Triangulated Irregular Network
CD	Contract Documents
2D	2D Model X,Y
3D	3D Model X,Y,Z

4D 3D Model + Schedule
5D 3D Model + Costs

General Content

By agreement with the contractor, the department will provide electronically stored BIM model deliverables. These are provided for informational purposes only, and not as an end product or as a record document, to augment project Plans, Specifications, and Estimates (PS&E). Reliance thereon is deemed to be unreasonable and unenforceable. Engineer will maintain and update as needed BIM model project deliverables consisting of proposed comprehensive 2D/3D model data and existing model data or portions of data which may include temporary and final states for the following when available:

- Roadways
- Topography
- Grading
- Drainage
- Structures
- Utilities, including abandoned utilities
- FTMS-Freeway Traffic Management System
- Signals
- Signs
- Lighting
- Pavement markings
- Landscaping
- Wetlands and waterways
- Railways
- Geotechnical soil boring locations
- Parcels
- Fencing
- Survey monumentation

Deliverables and Format

Engineer will maintain and update the data or portions of the BIM model electronically consisting of electronic 2D/3D files containing the following:

- Features
- Points
- Reference lines
- Break lines
- Area extents lines
- Profiles

The department will provide updated 2D/3D model information from design (including plans, specifications, and estimates, addendums, and all plan revisions). BIM models may include temporary conditions for the model and/or composite model of all stages and a stage by stage model of all the separate stages of construction as indicated in the plans, specifications, and estimates.

The department will provide, for information only, an updated composite 2D/3D file consisting of existing, proposed, and abandoned utilities when available. The files are generated from a variety of sources and formats including:

- Plans, with or without line and grade
- Surveys
- Pot Holing Hydrovac Excavation
- GPR/SPAR
- As-builts
- Digger's Hotline
- Utility Providers.

Project deliverables include electronic digital BIM model data and CAD data provided in Autodesk Civil 3D/Autocad 2018 or in Microstation V8i SS2 in the latest software version for 2D/3D DWG format and LandXML 1.2 file format and additionally construction stakeout data in ACSII format and CSV format. The BIM model data will contain:

- Features
- Points
- Mass points
- Lines
- Reference lines
- Break lines
- Area extents lines
- Profiles
- 3D TIN DTM surfaces
- LandXML surfaces

All data will be georeferenced to horizontal datum - NAD-83 (GRS-1980) (2007), vertical datum - NAVD-1988 (2007), and coordinate projection - Wisconsin County Coordinate System in U.S. survey feet. Specific datum/adjustment will be maintained for each WisDOT project to maintain accuracy and consistency. Horizontal and vertical datums will be provided on the Title Sheet of the WisDOT plan sets.

If you have any questions as to Project Datum/Adjustment, confirm with:

Thomas Lipsky, RLS Wisconsin DOT
SE Region Survey
thomas.lipsky@dot.wi.gov
(262)548-6737

If you have any questions as to Model Content, confirm with either of the following:

Ben McGillicuddy, Sr Project Engineer Wisconsin DOT
SE Freeways/Region Design
benjamin.mcgillicuddy@dot.wi.gov
(2624)548-6466

Dean Filtz, Sr Project Engineer Wisconsin DOT
SE Freeways/Region Design
dean.filtz@dot.wi.gov
(414)750-2014

Lance Parve, Sr Project Engineer/BIM Coordinator Wisconsin DOT
SE Freeways/Region Design-Construction
lance.parve@dot.wi.gov
(414)731-5375

Eric Arneson, Methods Development Unit Engineer Wisconsin DOT
Bureau of Project Development
eric.arneson@dot.wi.gov
(715)421-8384

Delivery Schedule

The department will provide the BIM model data to the contractor according to the following schedule dates:

- Existing Conditions Surfaces/Features elements (Surface-existing, Wetlands-located/surveyed, and right-of-way existing) at the project PS&E Date;
- AMG Roadway elements (Roadways/Surfaces-Proposed) and Roadway features prior to construction;
- Remaining LOD-CD elements prior to construction.

BIM MODEL REQUIREMENTS: PROJECT NAME/ID

Element / E-Existing; P-Proposed	Format	Data Type	LOA	LOD	Temp
RE-Real Estate, Right-of-Way & Buildings					
ROW-E	DWG	Line	0.02'+/-	2D	N/A
ROW-P	DWG	Line	0.02'+/-	2D	N/A
Parcels-E	DWG	Polygon	0.02'+/-	2D	N/A
Parcels-P	DWG	Polygon	0.02'+/-	2D	N/A
Excess Parcels-E	DWG	Polygon	0.02'+/-	2D	N/A
Easements-E	DWG	Line	0.02'+/-	2D	N/A
Easements-P	DWG	Line	0.02'+/-	2D	N/A
Buildings-E	DWG	Polygon/DSM	0.02'+/-	2D/3D	N/A
Buildings-P	DWG	Polygon/DSM	0.02'+/-	2D/3D	N/A
Fences-E	DWG	Line	0.02'+/-	2D	N/A
Fences-P	DWG	Line	0.02'+/-	2D	N/A
Imagery-E	JPG/TIF/SID	Raster	0.06'+/-	2D/3D	N/A
Lidar-E	LAS	Point Cloud	0.06'+/-	3D	N/A
EN-Environmental Areas					
Erosion Control-P	DWG	Line	0.10'+/-	2D	N/A
Wetlands Surveyed-E	DWG	Polygon	0.10'+/-	2D	N/A
Hazmat-E	DWG	Polygon	0.10'+/-	2D	N/A
EW-Earthworks/Non-roadway Surfaces					
Surfaces-E	DWG/XML	DTM/DSM	varies[1]	3D	N/A
Grading/Non-Road Surfaces-P	DWG/XML	DTM/DSM	0.06'+/-	3D	N/A
Cut/Fill Areas Isopachs-P	DWG	Polygon	0.06'+/-	2D	N/A
Longitudinal Breaklines/Points-E	DWG/XML	Line/Point	varies[1]	3D	N/A
Longitudinal Breaklines/Points-P	DWG/XML	Line/Point	0.06'+/-	3D	N/A
Slope Intercepts-P	DWG	Line	0.06'+/-	2D	N/A
Surface Limits-E	DWG	Line	0.06'+/-	2D	N/A
Surface Limits-P	DWG	Line	0.06'+/-	2D	N/A
RD-Roadways/Surfaces-Proposed					
Road Pavement-Top Surfaces-P	DWG/XML	DTM/DSM	0.02'+/-	3D	3D
Road Pavement-Base Course Surfs-P	DWG/XML	DTM/DSM	0.06'+/-	3D	3D
Road Pavement-Subgrade Surfs-P	DWG/XML	DTM/DSM	0.06'+/-	3D	3D
Road Curb & Gutter-P	DWG/XML	DSM/Line	0.02'+/-	2D/3D	N/A

Road Barriers-P	DWG/XML	DSM/Line	0.06'+/-	2D/3D	N/A
Road Alignments/Ref Lines/EOP-P	DWG/XML	Line	0.02'+/-	2D/3D	2D/3D
Road Pavement Marking-E	DWG	Line	0.10'+/-	2D	NA
Road Pavement Marking-P	DWG	Line	0.10'+/-	2D	2D
Road Stationing-P	DWG	Text	0.10'+/-	2D	N/A
Road Superelev TransitionStations-P	CSV	Point	0.02'+/-	2D	N/A
ST-Storm Sewer/Drainage – Proposed					
Inlets/MHs/OFs/Pipes/Culverts-E	DWG/DGN	Line/Solid	0.06'+/-	2D/3D	N/A
Inlets/MHs/OFs/Pipes/Culverts-P	DWG/DGN	Line/Solid	0.06'+/-	2D/3D	2D/3D
Ponds-E	DWG	DSM/Line	0.06'+/-	2D/3D	N/A
Ponds-P	DWG	DSM/Line	0.06'+/-	2D/3D	N/A
BR-Bridges-Proposed					
Stone Base	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Piles	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Footings	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Abutments	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Piers	DWG/DGN/XML	Line/Solid	0.02'+/-	2D/3D	N/A
CI Beams	DWG/DGN/XML	Line/Solid	0.02'+/-	2D/3D	N/A
Seats	DWG/DGN/XML	Line/Solid	0.02'+/-	2D/3D	N/A
Deck Including Fillets	DWG/DGN/XML	Line/Solid	0.02'+/-	2D/3D	N/A
Light Blisters	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Parapet Walls	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
RW-Retaining Walls-Proposed **MSE-Proposed**					
Straps	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Footings	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Top	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Coping	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
CIP-Cast-in-Place-Proposed					
Stone	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Piles	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Top of Footings	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Face of Wall	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Coping	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A

PAL-Pile & Lagging-Proposed					
CI Piles at Top & Bottom	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Face of Wall/Face of Piles	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Bottom of Wall	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Top of Wall/Coping	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Face of Piles	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Top and Toe of Sheets	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
SB-Sign Bridges-Proposed					
Footings	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Piles	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Structure	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Other Structures-Proposed					
NW-Noise Walls	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
TU-Tunnels-Utility	DWG/DGN/XML	Line/Solid	0.02'+/-	2D/3D	N/A
Structures-Existing					
BR-Bridges	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
RW-Retaining Walls	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
SB-Sign Bridges	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
TU-Tunnels	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
SF-Special Foundations-Proposed					
Drilled Shafts	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Driven Piles	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Bored Piles	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Caissons	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
SF-Special Foundation Walls-Proposed					
Foundation Anchors	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Underpinning	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Pile Caps	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Grade Beams	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
Tiebacks	DWG/DGN/XML	Line/Solid	0.06'+/-	2D/3D	N/A
LI-Lighting-Proposed					
Poles/Masts/Bases	DWG/DGN	Line/Solid	0.06'+/-	2D/3D	N/A
Conduit/Cabinets/Pull Boxes	DWG/DGN	Line/Solid	0.06'+/-	2D/3D	N/A
IT-ITS/FTMS Proposed					

DMS/CMS	DWG/DGN	Line/Solid	0.06'+/-	2D/3D	N/A
FTMS Fiber Optic lines	DWG/DGN	Line/Solid	0.06'+/-	2D/3D	N/A
FTMS Huts/Cabinets	DWG/DGN	Line/Solid	0.06'+/-	2D/3D	N/A
SN-Signs-Proposed					
Signs-Type 1	DWG/DGN	Line/Solid	0.06'+/-	2D/3D	N/A
Signs-Type 2	DWG/DGN	Line/Solid	0.06'+/-	2D/3D	N/A
SG-Signals-Proposed					
Poles/Heads/Bases	DWG/DGN	Line/Solid	0.06'+/-	2D/3D	N/A
Conduit/Pull Boxes	DWG/DGN	Line/Solid	0.06'+/-	2D/3D	N/A
WM-Water Main Proposed					
Pipes	DWG/DGN	Line/Solid	0.06'+/-	2D/3D	N/A
Hydrants/Valves/Fittings/ Standpipes	DWG/DGN	Line/Solid	0.06'+/-	2D/3D	N/A
SS-Sanitary Sewer-Proposed					
Pipes	DWG/DGN	Line/Solid	0.06'+/-	2D/3D	N/A
Manholes	DWG/DGN	Line/Solid	0.06'+/-	2D/3D	N/A
WU- Wet Utilities and WisDOT-maintained Utilities - Existing/Relocated/Abandoned [1]					
ST-Storm Sewer/Drainage	DWG/DGN	Line/Solid	0.10'+/- [2]	2D/3D	N/A
WM-Water Main	DWG/DGN	Line/Solid	0.10'+/- [2]	2D/3D	N/A
SS-Sanitary Sewer	DWG/DGN	Line/Solid	0.10'+/- [2]	2D/3D	N/A
LI-Lighting	DWG/DGN	Line/Solid	1.5'+/- [2]	2D/3D	N/A
IT-ITS/FTMS	DWG/DGN	Line/Solid	1.5'+/- [2]	2D/3D	N/A
TR-Traffic Control	DWG/DGN	Line/Solid	1.5'+/- [2]	2D/3D	N/A
DU-Dry Utilities and Other Utilities- Existing/Relocated/Abandoned [1]					
GS-Gas	DWG/DGN	Line/Solid	1.5'+/- [2]	2D/3D	N/A
SM-Steam	DWG/DGN	Line/Solid	1.5'+/- [2]	2D/3D	N/A
EL-Electrical	DWG/DGN	Line/Solid	1.5'+/- [2]	2D/3D	N/A
CO-Communications	DWG/DGN	Line/Solid	1.5'+/- [2]	2D/3D	N/A
FO-Fiber Optic	DWG/DGN	Line/Solid	1.5'+/- [2]	2D/3D	N/A
TE-Telephone/Data	DWG/DGN	Line/Solid	1.5'+/- [2]	2D/3D	N/A
CA-CATV/Data	DWG/DGN	Line/Solid	1.5'+/- [2]	2D/3D	N/A

[1] Data accuracies vary for existing surfaces depending upon survey data collection method(s) including: total station, GNSS-GPS, and static-mobile LiDAR (ranging in field from 0.02'+/- to 0.15'+/-); and aerial LiDAR and aerial photogrammetry (ranging from 0.10'+/- to 0.40'+/-).

Overall existing and proposed surface model accuracies may vary depending upon the method of data collection, the density of the model, corridor section frequencies, software applications, and other factors.

[2] 2D and/or 3D existing/proposed/abandoned utilities are approximate and other utilities may not be shown. 2D and/or 3D existing/proposed/abandoned utilities are generated from a variety of sources and formats including:

- Plans with line and grade

- Plans without line and grade
- Surveys
- Digger's Hotline
- As-builts
- Municipality records
- Pot holing/hydrovac excavation
- RD/EMI/GPR/SPAR

Existing utilities data are provided in the model, for purposes of information only, requiring confirmation from Digger's Hotline and utility providers.

37. Available Documents.

The department will make its information available to bidding contractors. The list of documents that are available for contractors' information includes:

- Design Study Report
- Exceptions to Standards Report
- Pavement Type Selection Report
- Environmental Document
- As-Built Drawings
- Preconstruction survey
- Traffic Management Plan

These documents are available from Chris Zacharias at 141 NW Barstow Street, Waukesha, WI 53187 (262) 548-6716.

Reproduction costs will be applied to all copies requested.

sef-102-005 (20170310)

38. Eliminated Work

Replace standard spec 104.2.2.5 with the following:

104.2.2.5 Change Orders for Eliminated Work

(1) The department has the right to partially eliminate or completely eliminate work the engineer finds to be unnecessary for the project. If the department eliminates work, the engineer will send a Work Authorization Form (WAF) directing the contractor to eliminate the work. If the engineer partially eliminates or completely eliminates work, the engineer will issue a contract change order for a fair and equitable amount as specified in 109.5.

(2) If the department executes an equalizing change order for the purpose of matching the authorized quantity to the amount of units measured and paid for any bid item, this shall not be considered eliminated work.

Replace standard spec 109.5 with the following:

109.5 Eliminated Work

(1) If the department partially eliminates or completely eliminates work as specified in 104.2.2.5, the department will pay contractor costs incurred due to that elimination. The department will pay a fair and equitable amount covering all costs incurred as of the date the work was deleted. Immediately submit a certified statement covering all money expended for the eliminated work.

(2) The department will execute a contract change order for the following costs related to eliminated work:

1. Preparation expenses defined as follows:
    - If preparation for the eliminated work has no value to other contract work, the department will reimburse the contractor in full for that preparation.

- If preparation for the eliminated work is distributed over other contract work, the department will prorate reimbursement based on the value of the eliminated work compared to the total value of associated contract work.

2. All restocking and cancellation charges.
3. A markup for applicable overhead and other indirect costs paid as 7 percent of the contract price of the work eliminated, except for the items in noted in 109.5*(2)4*. The engineer will issue a contract change order based on the net value of the eliminated work and any replacement work included in the change order.
4. If any of the following bid items are not used at all for the prosecution of the work, the department will eliminate them with a WAF and a contract change modification. A markup for applicable overhead and other indirect costs will be paid as 2 percent of the contract price of the bid item for the work eliminated:
    - 390.0403 Base Patching Concrete SHES
    - 416.1715 Concrete Pavement Repair SHES
    - 416.1725 Concrete Pavement Replacement SHES
    - 495.1000.S Cold Patch
    - 501.1000.S Ice Hot Weather Concreting
    - 624.0100 Water
    - 628.1905 Mobilization Erosion Control
    - 628.1910 Mobilization Emergency Erosion Control
    - 630.0500 Seed Water
    - SPV.0035.0001 EBS Excavation
    - SPV.0035.0002 EBS Backfill
    - SPV.0060.0120 Mobilizations Emergency Pavement Repair
    - SPV.0060.0603 Exposing Existing Infrastructure Paved Area
    - SPV.0060.0604 Exposing Existing Infrastructure Unpaved Area
    - SPV.0060.0940 Emergency Response to Traffic Incident Involving Concrete Barrier Temporary
    - SPV.0060.0945 Emergency Response to Traffic Incident Involving Crash Cushions
    - SPV.0180.0601 Soil Drying
    - SPV.0180.0603 Concrete Pavement Repair Special
    - SPV.0195.0001 Fly Ash Stabilization
    - SPV.0195.0020 HMA Longitudinal Joint Repair
    - SPV.0195.0601 Soil Drying Agent

(3) If the department partially eliminates or completely eliminates work, the department may pay for, and take ownership of, materials and supplies the contractor has already purchased.

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 Chris Zacharias, 141 NW Barstow Street, Waukesha, WI 53187, (262) 548-6716. Christopher.Zacharias@dot.wi.gov

- GEOTRECHNICAL EXPLORATION AND FOUNDATION EVALUATION REPORT ZOO INTERCHANGE CORRIDOR STUDY UNION PACIFIC RAIL ROAD (UPRR) BRIDGE OVER USH-45 & RETAINING WALL (Structure ID Nos. B-40-878 and R-40-622), August 31, 2015.
- Additional reports anticipated for other structures.

Additional geotechnical information is available from studies and analyses that have been performed by Forward 45, LLC (F45) for the department 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 conforming to the plans and specifications.

SEF Rev. 17_0310

40. Contract Award and Execution.

Add the following to standard spec 103 as subsections 103.9 and 103.10:

103.9 Bid Escrow Documentation

(1) 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 in this special provision within 72 hours of written notification by the department.

(2) The BED shall clearly itemize the contractor's estimated costs of performing the scope of work defined in the contract.

(3) 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.

(4) 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.

(5) All 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.

(6) It is not necessary to include documents provided by the department for the bidder's use in the preparation of the proposal.

(7) The low bidder shall present authentic copies of their BED at the department's office by October 16, 2020 (subject to change) 72 hours/3 days after let, at 10:00 AM.

(8) 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.

(9) 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.

(10) 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.

(11) 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.

(12) 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 in this section, 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.

(13) 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.

(14) 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 always remain in the possession of the Escrow Agent and will at no time be received by, or become the property of, the department.

(15) Submit a copy of the affidavit in this special provision, 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.

(16) The BED will remain in escrow until one or more of the following occurs:

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.

(17) If any of the events numbered 1-4 in this section 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 these 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 in this special provision 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*)

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

(1) After contract award, attend the following workshops. Each workshop is described within this special provision and will include the following topics:

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. Work Force Opportunities
9. Incident Crisis Communications Plan
10. Notice to Proceed

(2) The workshop dates will be scheduled after contract award.

(3) 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 before 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

(1) 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

(1) Provide the following information in the order shown in this special provision. This information will constitute the "Project Questionnaire."

General Information

If a Joint Venture, provide information for each member of the Joint Venture.

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 (QMP).

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

(1) 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. These modifications shall not impair the essential functions or characteristics of the project. These include:

Service life

Economy of operation

Ease of maintenance

Benefits to the traveling public

Desired appearance

Design and safety standards

(2) Submit recommendations resulting from the workshop for approval by the engineer as cost reduction incentive proposals in conformance with standard spec 104.10 "Cost Reduction Incentive".

(3) The department and the contractor may be able to complete the CRI Concept process, as specified in 104.10.2, during the CRI workshop.

(4) Submit CRIs after the CRI workshop that were not introduced at the CRI workshop.

103.10.2.3 Utility Coordination

(1) The Utility Coordination Workshop will define the scope and schedule of utility relocation work and the corresponding 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

(1) 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:
    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
3. Develop a schedule for submittals.

103.10.2.5 CPM Schedule

See specification Baseline CPM Progress Schedule.

103.10.2.6 Leadership Partnering Meetings Bi-Weekly

The department will implement mandatory bi-weekly leadership partnering meetings. Unless the department and contractor agree otherwise, the contractor management level personnel, project design engineers, project level supervisory personnel, and department management level personal shall meet bi-weekly from project start until the contractor accepts the tentative final estimate. The contractor and department may also invite the following as needed:

- FHWA
- Key project personnel of the contractor’s principal subcontractors and suppliers
- Local government representatives
- Environmental regulators
- Emergency service personnel
- Utility companies
- Impacted business and property owners

- Other stakeholders

This meeting will facilitate a cooperative team environment that clearly defines roles and responsibilities, determines common goals and objectives, and provides a platform to build trust and accountability. Meeting topics may include:

- Issue and risk management
- Dispute resolution procedures
- Safety
- Public outreach
- Traffic management
- Cost reducing incentives
- Claim resolution
- Scheduling issues
- Quality control

All mobilization workshop costs are incidental to the contract work.

sef-108-030 (20171004)

103.10.2.7 Secant and Tangent Pile Drilled Shaft Construction

(1) 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 before all 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.

(2) 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

(1) 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

After contract award, attend the Work Force Opportunities workshop. The workshop will take place on the same day and in the same location as the pre-construction meeting.

The Work Force Opportunities workshop will provide a venue for contractors to have meaningful dialogue with Transportation Alliance for New Solutions (TrANS) providers regarding the hiring of TrANS graduates. Reference ASP-1 for additional information regarding TrANS. The prime contractor and the nine largest subcontractors according to let value of work shall provide staff with hiring authority to participate in a job-matching session during this workshop. Workshop participants will, at a minimum:

- Review contractor hiring processes for general labor positions.
- Listen to a presentation provided by TrANS providers regarding the TrANS training program, including details regarding how contractors can hire TrANS graduates.
- Review TrANS graduate availability for working on the project.
- Meet one-on-one for two minutes with each TrANS graduate in attendance at the meeting.

sef-108-036 (20180627)

103.10.2.10 Incident Crisis Communications Plan

(1) 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

(1) After all workshops are completed, the Notice to Proceed will be issued.

sef-103-005 (20180104)

41. Contractor Notification.

Replace standard spec 104.2.2.2(2) with the following:

(2) If the contractor discovers the differing condition, provide a written notice, as specified in standard spec 104.3.3, of the specific differing condition before further disturbing the site and before further performing the affected work.

Replace standard specs 104.3.2 and 104.3.3 with the following:

104.3.2 (Vacant)

104.3.3 Contractor Initial Written Notice

(1) 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.

(2) 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-104-005 (20141211)

42. Municipal Acceptance of Sanitary Sewer and Water Main Construction.

The department personnel will inspect construction of sanitary sewer items under this contract.

The Wauwatosa Water Utility personnel will inspect construction of water main items under this contract.

Construction staking and testing for sanitary sewer items and water main items will be by the contractor.

Acceptance of the sanitary sewer construction will be by the City of Wauwatosa.

Acceptance of the water main construction will be by the Wauwatosa Water Utility.

43. Referenced Construction Specifications.

Construct the work enumerated below conforming to the Standard Specifications for Sewer and Water Construction in Wisconsin. 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.

Conform to the referenced construction specifications for the following:

Connections to Existing Water Main
Ductile Iron Water Main
Removing Water Main
Hydrant Assembly
Removing Hydrant
Copper and Ductile Iron Water Service
Gate Valves and Butterfly Valves
Sanitary Manholes

Adjusting and Reconstructing Sanitary Manholes
Sanitary Sewer
Steel Casing with Sanitary Sewer Carrier

stp-105-002 (20130615)

44. 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 PDF format to the engineer-designated folder within the department's SharePoint site. Send alerts with a link to the document via email to accounts the engineer determines. If possible, create PDFs from original documents in their native format (e.g. Word, Excel, AutoCAD, etc.). Scan other documents to PDF format with a minimum resolution of 600 dpi.

All costs for contractor document submittals are incidental to the contract.

sef-105-010 (20150619)

45. Dust Control Implementation Plan.

A Description

This special provision describes developing, updating, and implementing 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

Control dust 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. Control dust at all times during the contract.

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 land-disturbing activities without the department's approval of the DCIP.

C.2 DCIP 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.

Include 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. Provide:
   - Name, firm, address, and working-hours phone number.
   - Non-working-hours phone number.
   - Email address.

2. 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 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.
3. A matrix, or plan, for each anticipated land disturbing, dust generating activity, showing 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. Identify the specific contract bid items that shall be used for payment. Indicate costs and practices that are incidental to the contract.
   - Both maintenance and cleanup schedules and procedures.
   - Excess and waste materials disposal strategy.
4. A description of monitoring and resolving off-site impacts.

C.3 Updating the DCIP

Update the DCIP during the contract or as the engineer directs. Obtain the engineer's approval for all DCIP alterations. Also obtain the engineer's approval for routine DCIP 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

Coordinate with engineer to determine deadlines for resolving dust control deficiencies. Deficiencies include actions or lack of actions resulting in excessive dust, non-compliance with the contractor's DCIP or associated special provisions, and not properly maintaining 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 specs 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 includes the contract bid items listed in this special provision:

623.0200	Dust Control Surface Treatment
624.0100	Water
628.7560	Tracking Pads
SPV.0075.0601	Pavement Cleanup Project 1060-33-84
SPV.0075.0602	Pavement Cleanup Project 1060-34-77

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-107-005 (20170323)

46. 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 Wisconsin Department of Natural Resources to request additional information and permit application materials. Complete permit applications may take 3 months to process.

sef-999-039 (20160929)

47. Maintaining Drainage.

Maintain drainage at and through worksite during construction conforming to standard spec 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 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-107-016 (20170310)

48. 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-108-035 (20171004)

49. Abatement of Asbestos Containing Material B-40-0137, Item 203.0210.S.0001; Abatement of Asbestos Containing Material B-40-0259, Item 203.0210.S.0004.

A Description
This special provision describes abating asbestos containing material on structures according 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-40-0137 for asbestos on June 22, 2009. Regulated Asbestos Containing Material (RACM) is assumed to be present on this structure in the following locations and quantities:

B-40-0137
Utilities; Conduit; Bridge Parapet; 1-(4 inches x 155 feet).

Timothy G. Petrofske, Lic. Number All-115985 and Thomas McCoy, License Number All-117261, inspected Structures B-40-0135 and B-40-0136 for asbestos on June 10, 2009. Regulated Asbestos Containing Material (RACM) is assumed to be present on these structures in the following locations and quantities:

B-40-0259
Gasket - Gray; Bridge Railing - Southwest and Southeast; 66-(6 inches x 6 inches), 4-(6 inches x 2 feet)

Locktite - Gray; Bridge Railing Bolts - Southwest and South Center; 280-(1inch x 1 inch)

Regulated Asbestos Containing Material (RACM) is also assumed to be present on Structure B-40-0259 in the following locations and quantities:

Utilities; Light Pole; Bridge Parapet - North and South; 4-(30 feet x 6 inches)

Utilities; Conduit - Steel Pipe Wrapped; Bridge Deck Underside; 1-(222 feet x 3 inches)

Timothy G. Petrofske, Lic. Number All-115985, inspected Structures B-40-0138 and B-40-0139 for asbestos on June 15, 2009. Regulated Asbestos Containing Material (RACM) is assumed to be present on these structures in the following locations and quantities:

The RACM on these structures must be abated by a licensed abatement contractor. A copy of the inspection report is available from Chris Zacharias, (262) 548-6716. According 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 & Environmental Engineer, (262) 548-6705 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-40-0137
- Site Name: Structure B-40-0137, Chicago and Northwestern Railroad over USH 45 – Zoo Freeway
- Site Address: 1907N21E, Wauwatosa.
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Sean Race
- Phone: (414) 750-2380
- Age: 57 years old. This structure was constructed in 1963.
- Area: N/A SF of deck

B-40-0259
- Site Name: Structure B-40-0139, W Meinecke Avenue over USH 45 – Zoo Freeway
- Site Address: 1807N21E, Wauwatosa.
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow Street, P.O. Box 798, Waukesha, WI 53187-0798
- Contact: Sean Race
- Phone: (414) 750-2380
- Age: 53 years old. This structure was constructed in 1967.
- Area: 9,768 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 according 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 according 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-40-0137	LS
203.0210.S.0004	Abatement of Asbestos Containing Material Structure B-40-0259	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)

50. Removing Old Culverts and Bridges

Add the following to standard spec 203.3.1:

203.3.1.1 Structure Removal Site Safety Plan

(1) 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 before beginning removal work.

203.3.1.2 Structure Removal Plans

(1) Prepare a structure specific removal plan for each of the following existing structures indicating the methods and sequence of demolition:

Existing Structure	Structure Type	Feature On	Feature Under
B-40-0135	14-Span Continuous Steel Deck Girder	IH 41/USH 45 NB	Underwood Creek, Underwood Parkway, CPRR Railroad, STH 100//Mayfair Road
B-40-0136	14-Span Continuous Steel Deck Girder	IH 41/USH 45 SB	Underwood Creek, Underwood Parkway, CPRR Railroad, STH 100//Mayfair Road
B-40-0137	2-Span Continous Steel Deck Girder	UPRR Line	IH 41/USH 45 NB, IH 41/USH 45 SB

Existing Structure	Structure Type	Feature On	Feature Under
B-40-0138	4-Span Steel Deck Girder	IH 41/USH 45 SB	North Avenue
B-40-0139	4-Span Steel Deck Girder	IH 41/USH 45 NB	North Avenue
B-40-0259	4-Span Continuous Steel Deck Girder	Meinecke Avenue	IH 41/USH 45 NB, IH 41/USH 45 SB

This table does not include all the structure removals included in the contract. It is a list of existing structure removals included in the contract for which a structure specific detailed removal plan is required to be submitted.

Examine the existing structure plans and visit the site before 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 before beginning structure removal activities. If the engineer agrees before, 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 conforming to the submitted Structure Removal Site Safety Plan and applicable Structure Removal Plan(s).

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 conforming to the submitted plans.

51. Debris Containment B-40-138, Item 203.0225.S.0001; Debris Containment B-40-875, Item 203.0225.S.0002; Debris Containment B-40-876, Item 203.0225.S.0003; Debris Containment B-40-877, Item 203.0225.S.0004;

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

Before starting work, submit a debris containment plan to the engineer for review. Incorporate engineer-requested modifications. Do not start work over North Avenue until the engineer approves the debris containment plan.

Maintain adequate protection throughout construction for people and property within the potential fall zone. Install a containment system that maintains existing vertical clearance to the facilities below and is capable of protecting underlying facilities from falling construction debris 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:

1. Bill Wehrley, City Engineer
   - City of Wauwatosa
   - 7725 W North Avenue
   - Wauwatosa, WI 53213
   - (414) 479-8329
   - wwehrley@wauwatosa.net

Upon completion of the work or when directed by the engineer, remove the debris containment system.

D Measurement

The department will measure Debris Containment B-40-138 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-40-138	LS
203.0225.S.0002	Debris Containment B-40-875	LS
203.0225.S.0003	Debris Containment B-40-875	LS
203.0225.S.0004	Debris Containment B-40-877	LS

Payment for Debris Containment is full compensation supplying a debris containment plan; and for furnishing, installing, maintaining, and removing a debris containment system.

stp-203-010 (20190618)

52. Removing Old Structure Over Waterway With Minimal Debris Station 408+50NS, Item 203.0600.S.0001; Removing Old Structure Over Waterway With Minimal Debris Station 220+00NSSB, Item 203.0700.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-40-135 and B-40-136 over the Underwood Creek in large sections and conforming to the contractor's approved structure removal 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	Removing Old Structure Over Waterway With Minimal Debris Station 408+50NS	LS
203.0600.S	Removing Old Structure Over Waterway With Minimal Debris Station 220+00NNSSB	LS

stp-203-020 (20190618)

53. 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.

54. Removing Concrete Barrier.

Add the following to standard spec 204.3.2.2.1 as paragraph fourteen:

(14) 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 conforming to standard spec 690.

Add the following to standard spec 204.5.1(2) as paragraph two:

(2) Payment for Removing Concrete Barrier is full compensation for all required sawing and removal of existing barrier and footing, and sludge removal.

sef-204-025 (20180104)

55. 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

56. Storm Sewer.

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 608.2 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 608.3.1.1 with the following:

Incorporate excavated material in the work to the extent practicable. Use materials with suitable engineering properties for embankment.

Dispose of surplus or unsuitable material as specified in standard spec 205.3.12.

Supplement standard spec 608.3.3 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 ajack 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 granular backfill material; for QMP sampling, testing and documentation; for cleaning out; and absent the pertinent contract bid items, for restoring the work site.

57. 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.

stp-204-050 (20080902)

58. Removing Advance Flasher Assemblies Type 1, Item 204.9001.S.

A Description

This special provision describes removing advance flasher assemblies from the locations the plans show. Rewire and disconnect wiring in the control cabinet as necessary and properly dispose of materials

conforming to standard spec 204.3.1.3.

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
204.9001.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.

stp-204-060 (20170615)

59. Removing Apron Endwall, Item 204.9060.S.0002.

A Description

This special provision describes removing Apron Endwall according 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

Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
204.9060.S.0002	Removing Apron Endwall	EACH

stp-204-025 (20150630)

60. Removing Distribution Center, Item 204.9060.S.1001.

A Description

This special provision describes removing an existing highway lighting distribution center and electrical service pedestal as shown on the plans, according to the pertinent provisions of standard spec 204, and as hereinafter provided.

B (Vacant)

C Construction

Remove the lighting distribution center and the electrical service pedestal and dispose off the project site.

The department will issue the demolition request to WE-Energies. Coordinate with the utility for disconnection of services. The department will pay any fees charged by the utility.

Removal of the concrete base will be paid under a separate bid item.

D Measurement

The department will measure Removing Distribution Center by each individual unit; acceptably completed.

E Payment

Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
204.9060.S.1001	Removing Distribution Center	EACH

Payment is full compensation for removal of the distribution center, electrical service pedestal, and for utility coordination for the services.

61. Removing Lighting Units, Item 204.9060.S.1002.

A Description

This special provision describes the removing lighting units as shown on the plans, according to the pertinent provisions of standard spec 204, and hereinafter provided. Lamp disposal and concrete base removal shall be paid under a separate bid items.

B (Vacant)

C Construction

Remove lighting units consisting of pole, arm, luminaire, lamp, wires, breakaway device, and associated hardware and appurtenances. All removed material shall become the property of the contractor and be disposed off the project site.

No removal work will be permitted without approval from the engineer. Removal shall start as soon as the temporary lighting or permanent lighting, as applicable, is placed in approved operation. An inspection and approval by the engineer will take place before any associated proposed permanent or temporary lighting is approved for operation.

D Measurement

The department will measure Removing Lighting Units by each individual unit removed, acceptably completed.

E Payment

Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
204.9060.S.1002	Removing Lighting Units	EACH

62. Removing Sign Lighting, Item 204.9060.S.1003.

A Description

This special provision describes removing all the sign lighting on a sign structure as shown on the plans, according to pertinent provisions of standard spec 204, and as hereinafter provided.

B (Vacant)

C Construction

Remove all the luminaires, conduit, and wiring associated with existing sign lighting on an existing sign structure. Dispose of all materials off the project site except lamps. Lamps shall be disposed under a separate bid item.

D Measurement

The department will measure Removing Sign Lighting by each individual unit, acceptably completed.

E Payment

Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
204.9060.S.1003	Removing Sign Lighting	EACH

63. Removing Poles Wood 60-FT, Item 204.9060.S.1004.

A Description

This special provision describes removing 60-ft wood poles as shown on the plans and according to the pertinent provisions of standard spec 204 and hereinafter provided.

B (Vacant)

C Construction

Remove the 60-ft wood poles and all attached conduit and wiring. Backfill all holes as specified in Section 203.3.5, except that broken masonry will not be allowed, to the final grade lines or as directed by the engineer. Dispose of all materials off the project site.

Restore all areas disturbed by construction activities to the final grade lines with topsoil and seed and mulch that meet the requirements of 625, 630, and 627 of the standard specs respectively. Restoration is incidental to this bid item.

D Measurement

The department will measure Removing Poles Wood 60-Foot as each individual unit, acceptably completed.

E Payment

Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
204.9060.S.1004	Removing Poles Wood 60-FT	EACH

64. Removing Poles Wood 60-FT and Floodlight, Item 204.9060.S.1005.

A Description

This special provision describes Removing Poles Wood 60-FT and Floodlight as shown on the plans, according to the pertinent provisions of standard spec 204, and as hereinafter provided.

B (Vacant)

C Construction

Remove mast arm or bracket arm, luminaire, air terminal, conduit, wiring, and junction box. Backfill all holes as specified in standard spec 203.3.5, except that broken masonry will not be allowed, to the final grade lines or as directed by the engineer.

Dispose of all materials except lamps off the project site. 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. The bid price is to reflect the salvage value of the removed wood pole lighting unit.

Restore all areas disturbed by construction activities to the final grade lines with topsoil and seed and mulch that meet the requirements of standard spec 625, 630, and 627, respectively. Restoration is incidental to this bid item.

D Measurement

The department will measure Removing Poles Wood 60-Foot and Floodlight by each individual unit, acceptably completed.

E Payment

Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
204.9060.S.1005	Removing Poles Wood 60-FT and Floodlight	EACH

Payment is full compensation for removing wood poles and floodlights, removing all attached components, backfilling all holes as provided in 203.3.5, and restoration of disturbed areas.

65. Removing Poles Wood 35-FT, Item 204.9060.S.1006.

A Description

This special provision describes removing 35-ft wood poles as shown on the plans and according to the pertinent provisions of standard spec 204 and hereinafter provided.

B (Vacant)

C Construction

Remove the 35-ft wood poles and all attached conduit and wiring. Backfill all holes as specified in standard spec 203.3.5, except that broken masonry will not be allowed, to the final grade lines or as directed by the engineer. Dispose of all materials off the project site.

Restore all areas disturbed by construction activities to the final grade lines with topsoil and seed and mulch that meet the requirements of standard spec 625, 630, and 627, respectively. Restoration is incidental to this bid item.

D Measurement

The department will measure Removing Poles Wood 35-Foot as each individual unit, acceptably completed.

E Payment

Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
204.9060.S.1006	Removing Poles Wood 35-FT	EACH

66. Removing Poles Wood 35-FT and Floodlight, Item 204.9060.S.1007.

A Description

This special provision describes Removing Poles Wood 35-FT and Floodlight as shown on the plans, according to the pertinent provisions of standard spec 204, and as hereinafter provided.

B (Vacant)

C Construction

Remove mast arm or bracket arm, luminaire, air terminal, conduit, wiring, and junction box. Backfill all holes as specified in Section 203.3.5, except that broken masonry will not be allowed, to the final grade lines or as directed by the engineer.

Dispose of all materials except lamps off the project site. 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. The bid price is to reflect the salvage value of the removed wood pole lighting unit.

Restore all areas disturbed by construction activities to the final grade lines with topsoil and seed and mulch that meet the requirements of standard spec 625, 630, and 627, respectively. Restoration is incidental to this bid item.

D Measurement

The department will measure Removing Poles Wood 35-Foot and Floodlight by each individual unit, acceptably completed.

E Payment

Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
204.9060.S.1007	Removing Poles Wood 35-FT and Floodlight	EACH

Payment is full compensation for removing wood poles and floodlights, removing all attached components, backfilling all holes as provided in 203.3.5, and restoration of disturbed areas.

67. Removing Underdeck Lighting, Item 204.9060.S.1008.

A Description

This special provision describes removing underdeck lighting according to the pertinent provisions of standard spec 204, as shown on the plans, and hereinafter provided.

B (Vacant)

C Construction

No removal work will be permitted without approval from the engineer. Removal shall start as soon as the temporary lighting or permanent lighting, as applicable, is placed in approved operation. An inspection and approval by the engineer will take place before any associated proposed permanent or temporary lighting is approved for operation.

Remove underdeck lighting luminaires, attached conduits, wires, attached junction boxes, and associated hardware and appurtenances at locations shown in the plan and as directed by the engineer. Removed materials shall become the property of the contractor and shall be disposed off the project site according to pertinent requirements of standard spec 203.3.4 of the standard specs. Lamp disposal shall be paid under a separate bid item.

All embedded conduits, junction boxes and hardware are not included in this bid item.

D Measurement

The department will measure Removing Underdeck Lighting by each unit removed and disposed of off the project site including associated materials, 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
204.9060.S.1008	Removing Underdeck Lighting	EACH

Payment is full compensation for removing and disposing of luminaires, attached conduits, attached junction boxes, and hardware.

68. Removing Luminaires Underdeck Lighting, Item 204.9060.S.1009.

A Description

This special provision describes removing existing luminaires and lamps from bridge decks as shown on the plans, according to the pertinent provisions of standard spec 204, and as hereinafter provided. Bridge deck shall remain in service.

B Material

Removed luminaires and lamps become the property of the contractor and shall be disposed off the project site. Lamps, which are considered a hazardous material, shall be disposed of an environmentally sound manner.

C Construction

No removal work will be permitted without approval from the engineer. Removal shall start as soon as the temporary lighting or permanent lighting, as applicable, is placed in approved operation. An inspection and approval by the engineer will take place before any associated proposed permanent or temporary lighting is approved for operation.

D Measurement

The department will measure Removing Luminaires by each individual unit, acceptably completed.

E Payment

Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
204.9060.S.1009	Removing Luminaires Underdeck Lighting	EACH

SER-204.11 (20171021)

69. Removing Temporary Precast Trench Drain, Item 204.9090.S.0005.

A Description

This special provision describes removing Temporary Precast Trench Drain according to the pertinent provisions of standard spec 204 and as hereinafter provided.

B (Vacant)

C (Vacant)

D Measurement

The department will measure Removing Temporary Precast Trench Drain in linear feet, acceptably completed.

E Payment

Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
204.9090.S.0005	Removing Temporary Precast Trench Drain	LF

stp-204-025 (20150630)

70. Removing Drain Slotted Vane, Item 204.9090.S.0006.

A Description

This special provision describes removing Drain Slotted Vane according 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

Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
204.9090.S.0006	Removing Drain Slotted Vane	LF

stp-204-025 (20150630)

71. Removing Sheet Pile Shoring, Item 204.9090.S.0100.

A Description

This special provision describes removing Sheet Pile Shoring conforming to standard spec 204.

B (Vacant)

C Construction

Remove the sheet pile shoring to a depth of one foot below the existing ground surface.

D Measurement

The department will measure Removing Sheet Pile Shoring in linear feet, acceptably completed.

E Payment

Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
204.9090.S.0100	Removing Sheet Pile Shoring	LF

stp-204-025 (20150630)

72. Removing Temporary Traffic Signals IH 41 SB On Ramp & W North Ave, Item 204.9105.S.3001; Removing Temporary Traffic Signals IH 41 NB On Ramp & W North Ave, Item 204.9105.S.3002.

A Description

This special provision describes removing existing Temporary Traffic Signals at IH 41 SB Ramps & W. North Avenue and IH 41 NB Ramps & W. North Avenue as the plans show, conforming to standard spec 204, and as follows. Specific removal items are noted in the plans.

B (Vacant)

C Construction

Arrange for the de-energizing of the traffic signals with the local electrical utility after receiving approval from the engineer that the existing temporary traffic signals can be removed.

Notify the department's Electrical Field Unit at (414) 266-1170 and City of Wauwatosa Public Works Department at (414) 471-8422 at least three (3) working days prior to the removal of the temporary traffic signals. Complete the removal work as soon as possible following shut down of the equipment.

The department and City of Wauwatosa assume that all equipment is in good condition and in working order prior to the contractor's removal operation. Prior to removal, inspect and provide a list of any damaged or non-working traffic signal equipment to the engineer. Any equipment not identified as damaged or not working, prior to removal, will be replaced by the contractor at no cost to the department.

Remove all temporary traffic signal equipment per plan and disassemble out of traffic. Remove the signal heads, emergency vehicle preemption heads (evp), non-intrusive detection equipment, luminaires, wiring/cabling, and traffic signal mounting devices. Remove the span wire, tether wire, traffic signal wire/cable, street lighting cable and mounting hardware from the wood poles. Deliver the Ethernet Radios, Ethernet Switch and Traffic Signal Controller to the WisDOT West Allis Electrical Service Facility at 935 South 60th Street, West Allis, Milwaukee County. Contact the department's Electrical Field Unit at

(414) 266-1170 at least five (5) working days prior to delivery to make arrangements. Deliver all remaining materials to the City of Wauwatosa Electrical Yard at 11100 W. Walnut Road, Wauwatosa, WI. Contact the City of Wauwatosa Public Works Department at (414) 471-8422 at least five (5) working days prior to delivery to make arrangements.

D Measurement

The department will measure Removing Temporary Traffic Signals as a single lump sum of work for each intersection, acceptably completed.

E Payment

Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
204.9105.S.3001	Removing Temporary Traffic Signals IH 41 SB On Ramp & W North Ave	LS
204.9105.S.3002	Removing Temporary Traffic Signals IH 41 NB On Ramp & W North Ave	LS

73. Removing Traffic Signals W North Ave & N 116th St, Item 204.9105.S.3101.

A Description

This special provision describes removing existing Traffic Signals at W. North Avenue & N. 116th Street as the plans show, conforming to standard spec 204, and as follows. Specific removal items are noted in the plans.

B (Vacant)

C Construction

Arrange for the de-energizing of the traffic signals with the local electrical utility after receiving approval from the engineer that the existing traffic signals can be removed.

Notify the department's Electrical Field Unit at (414) 266-1170 and City of Wauwatosa Public Works Department at (414) 471-8422 at least three working days prior to the removal of the temporary traffic signals. Complete the removal work as soon as possible following shut down of the equipment.

The department and City of Wauwatosa assumes that all equipment is in good condition and in working order prior to the contractor's removal operation. Prior to removal, inspect and provide a list of any damaged or non-working traffic signal equipment to the engineer. Any equipment not identified as damaged or not working, prior to removal, will be replaced by the contractor at no cost to the department.

Remove all standards and poles per plan from their concrete footings and disassemble out of traffic. Remove the transformer bases from each pole. Remove the signal heads, emergency vehicle preemption (EVP) heads, non-intrusive detection equipment, monotube arms, luminaires, wiring/cabling, and traffic signal mounting devices from each signal standard, arm or pole. Ensure that all access hand-hole doors and all associated hardware remain intact. Remove the traffic signal cabinet from the concrete footing. Dispose of the underground signal cable, internal wires and street lighting cable off the right-of-way. Deliver the remaining materials to the City of Wauwatosa Electrical Yard at 11100 W. Walnut Road, Wauwatosa, WI. Contact the City of Wauwatosa Public Works Department at (414) 471-8422 at least five working days prior to delivery to make arrangements.

D Measurement

The department will measure Removing Traffic Signals as a single lump sum of work for each intersection, acceptably completed.

E Payment

Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
204.9105.S.3101	Removing Traffic Signals W North Ave & N 116th St	LS

74. Roadway and Drainage Excavation.

Supplement standard spec 205.3.2 (4) with the following:

If placing embankment against existing railway side slopes steeper than one vertical to 4 horizontal, provide vertically faced horizontal steps or benches in the slopes to support the embankment. Cut the base of each step as nearly horizontal as possible and compact the vertical cut in its entirety to the degree specified for the project. Do not use vertical benches greater than 5 feet high. Perform benching operations so as to avoid undermining any adjacent existing tracks or structures. Do not keep steps cut into the slope unsupported overnight. The contractor may cut or form the steps or benches while placing the embankment.
Supplement standard spec 205.3.2 with the following:

(6) In railway cut sections, the contractor shall scarify the top six (6) inches of material below the subgrade, adjust the moisture content, and recompact such scarified material.

Supplement standard spec 205.3.7.2 with the following:

(10) No blasting will be allowed within the railway limits without a one week minimum advanced notice given to UPRR to ensure safe and continuous train operations.

75. Roadway Excavation.

Borrow or excavation common will not be paid for structure excavation used in embankments.

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.

Replace standard spec 205.3.13(3) with the following:

The engineer will evaluate cuts and shallow fills to determine if corrective work, EBS Excavation/EBS Backfill, or Fly Ash Stabilization is required. If the engineer requests, provide loaded trucks and run the grade as the engineer directs to confirm yielding areas. Perform EBS Excavation/EBS Backfill or Fly Ash Stabilization in yielding areas as the engineer directs.

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.

76. Excavation, Hauling, and Disposal of Petroleum Contaminated Soil, Item 205.0501.S.

A Description

A.1 General

This special provision describes excavating, loading, hauling, and disposing of petroleum contaminated soil at a DNR approved bioremediation facility. This special provision describes excavating, loading,

hauling, and bioremediation of petroleum contaminated soil at a DNR licensed facility. The closest DNR licensed landfill facilities that can bioremediate this soil once excavated are:

Waste Management Orchard Ridge Landfill
N96W13503 County Line Road
Menomonee Falls, WI 53051
Phone (262) 253-8620

Advanced Disposal Emerald Park Landfill, LLC
W124 S10629 S 124th St
Muskego, WI 53150
Phone (414) 529-1360

Perform this work conforming to standard spec 205 and 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 contaminated soil.

A.2 Notice to the Contractor – Contaminated Soil Locations

The department completed testing for soil and groundwater contamination for locations within this project where excavation is required. Testing indicated that petroleum-contaminated soil is present at the following locations the plans show:

- Station 12+65RDE to 13+55RDE from 10 feet right of reference line to project limits right, from approximately 4 to 6+ feet below grade. Soil excavated from this area will require off-site bioremediation. The estimated volume of contaminated soil to be excavated at this location is 230 cubic yards (approximately 391 tons using a conversion factor of 1.7 tons per cubic yard).
- Station 16+10RDE to 16+55RDE from 10 feet right of reference line to project limits right, from approximately 0 to 12+ feet below grade. Soil excavated from this area will require off-site bioremediation. The estimated volume of contaminated soil to be excavated at this location is 250 cubic yards (approximately 425 tons using a conversion factor of 1.7 tons per cubic yard).
- Station 16+25RDE to 16+90RDE from 60 feet left of reference line to 10 feet right of reference line, from approximately 1 to 16 feet below grade and 28 to 32 feet below grade. Soil excavated from this area will require off-site bioremediation. The estimated volume of contaminated soil to be excavated at this location is 1,172 cubic yards (approximately 1,992 tons using a conversion factor of 1.7 tons per cubic yard).
- Station 16+90RDE to 17+50RDE from 60 feet left of reference line to project limits right, from approximately 1 to 16 feet below grade and 28 to 32 feet below grade. Soil excavated from this area will require off-site bioremediation. The estimated volume of contaminated soil to be excavated at this location is 2,043 cubic yards (approximately 3,473 tons using a conversion factor of 1.7 tons per cubic yard).
- Station 19+25RDE to 20+50RDE from 60 feet left of reference line to project limits right, from approximately 1 to 12 feet below grade and 27 to 31 feet below grade. Soil excavated from this area will require off-site bioremediation. The estimated volume of contaminated soil to be excavated at this location is 5,475 cubic yards (approximately 9,308 tons using a conversion factor of 1.7 tons per cubic yard).
- Station 111+10NO to 111+70NO from 30 feet left of reference line to 40 feet right of reference line from approximately 4 feet to 16 feet below grade, estimated 175 cubic yards or 298 tons.
- Station 111+70NO to 112+65NO from 5 feet left of reference line to 20 feet right of reference line from approximately 4 feet to 16 feet below grade, estimated 285 cubic yards or 484 tons.

A.3 Excavation Management Plan

The excavation management plan for this project has been designed to minimize the offsite bioremediation of contaminated 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:

For further information regarding previous investigation and remediation activities at these sites contact:

Name:	Andrew Malsom
Address:	141 NW Barstow Street, PO Box 798, Waukesha, WI 53187-0798
Phone:	(262) 548-6705
Fax:	(262) 548-6891
E-mail:	andrew.malsom@dot.wi.gov

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.
Phone:	(262) 901-2126 office / (262) 227-9210 cell
Fax:	(262) 879-1220
E-mail:	bbergmann@trccompanies.com

The role of the environmental consultant will be limited to:

1. Determining the location and limits of contaminated soil to be excavated based on soil analytical results from previous investigations, visual observations, and field screening of soil that is excavated;
2. Identifying contaminated soils to be hauled to the bioremediation facility;
3. Documenting that activities associated with management of contaminated soil are in conformance with the contaminated soil management methods for this project as specified herein; and
4. Obtaining the necessary approvals for disposal of contaminated soil from the bioremediation 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 areas of contamination to the environmental consultant. Also notify the environmental consultant at least three calendar days before beginning excavation activities in each of the contaminated areas.

Coordinate with the environmental consultant to ensure that the environmental consultant is present during excavation activities in the contaminated areas. Perform excavation work in each of the contaminated areas on a continuous basis until excavation work is completed.

Identify the DNR approved bioremediation facility that will be used for disposal of contaminated soils, and provide this information to the environmental consultant no later than 30 calendar days before beginning excavation activities in the contaminated areas or at the preconstruction conference, whichever comes first. The environmental consultant will be responsible for obtaining the necessary approvals for disposal of contaminated soils from the bioremediation facility. Do not transport contaminated soil offsite without prior approval from the environmental consultant.

A.5 Health and Safety Requirements

Add the following to standard spec 107.1:

During excavation activities, expect to encounter soil contaminated with gasoline, diesel fuel, fuel oil, or other petroleum related products. 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 contaminated site location 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 before the start of work.

B (Vacant)

C Construction

Add the following to standard spec 205.3:

Control operations in the contaminated areas to minimize the quantity of contaminated soil excavated.

The environmental consultant will periodically evaluate soil excavated from the contaminated areas to determine if the soil will require offsite bioremediation. 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 soils designated by the environmental consultant for offsite bioremediation to the DNR approved bioremediation facility. Use loading and hauling practices that are appropriate to prevent any spills or releases of petroleum-contaminated soils or residues. Before transport, sufficiently dewater soils designated for off-site bioremediation so as not to contain free liquids.

If dewatering is required in an area of known contamination, water generated from dewatering activities may contain contaminants and require special handling and disposal. Such water may, with approval of the City of Wauwatosa and the Milwaukee Metropolitan Sewerage District (MMSD), be discharged to the sanitary sewer as follows:

- Meet all applicable requirements of the MMSD including the control of suspended solids. Perform all necessary monitoring to document compliance with MMSD's requirements. Furnish, install, operate, maintain, disassemble, and remove treatment equipment necessary to comply with MMSD's requirements.
- Ensure continuous dewatering and excavation safety at all times. Provide, operate, and maintain adequate pumping equipment and drainage and disposal facilities.

Notify the engineer of any dewatering activities and obtain any permits necessary to discharge water. Provide copies of such permits to the engineer. 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 and dewatering in the contaminated area are considered incidental to this pay item. The Wisconsin Department of Transportation will be the generator of regulated solid waste from the construction project.
Limit excavation in the location described above in A.2 to minimize the handling of groundwater. Notify the engineer of any dewatering activities and obtain any permits necessary to discharge or dispose of contaminated 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.

D Measurement

The department will measure Excavation, Hauling, and Disposal of Petroleum Contaminated Soil in tons of contaminated soil, accepted by the bioremediation facility as documented by weight tickets generated by the bioremediation facility.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
205.0501.S	Excavation, Hauling, and Disposal of Petroleum Contaminated Soil	Ton

Payment is full compensation for excavating, segregating, loading, hauling, and treatment via bioremediation of contaminated soil; obtaining solid waste collection and transportation service operating licenses; assisting in the collection soil samples for field evaluation; and dewatering of soils before transport, if necessary. No additional payment will be made for tipping fees associated with the disposal of contaminated soil.

77. Excavation For Structures Retaining Walls.

Add the following to standard spec 206.2:

(3) If the plan details call for Controlled Low Strength Material (CLSM), provide CLSM for backfill consisting 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 have a consistent texture and flow characteristics, be self-leveling and not exhibit 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	ASTM D-6103	9-inches minimum
Compressive Strength	ASTM D-6024	20 - 40 psi @ 14 days 40 - 80 psi @ 28 days 80 - 120 psi @ 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.

(4) If the plan details call for flowable backfill, provide backfill material consisting of aggregates that conform to standard spec 501 for Grade A Concrete and do not add any cementitous material; cement or fly ash, to the flowable fill 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.

Add the following to standard spec 206.3.13.1:

(13) For soldier pile retaining walls, when called for in the plans, backfill around soldier piles above the soldier pile foundations with CLSM as shown on the plans. 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.

(14) For soldier pile retaining walls, when called for on the plans, fill all voids behind timber lagging and excavated soil with flowable backfill. Prior to placement of flowable backfill, provide for positive drainage of the area to be backfilled. Discharge from the truck in a manner to prevent segregation. Completely fill excavation in a single operation. Consolidation or compaction effort is not required.

Add the following to standard spec 206.5.2:

(8) Payment for Structure Excavation Retaining Walls includes providing and placing CLSM as backfill when CLSM as backfill is called for on the plans.

(9) Payment for Structure Excavation Retaining Walls includes providing and placing flowable backfill when flowable backfill is called for on the plans.

78. 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:

- IH 41/USH 45 mainline
- IH 41/USH 45 ramps
- All temporary left in place and permanent freeway ramps
- Cross roads
- Local roads
- 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:

https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/rdwy/default.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:

- An organizational chart with names, telephone numbers, current certifications or titles, and roles and responsibilities of QC, QV, and IA 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.
- 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 control charts and other documentation.
- A summary of the locations and calculated quantities to be tested under this provision.
- 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

https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/qual-labs.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/

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 94 N-S construction field office. 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 field office

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:

- Embankment portions of the project, except within 200 feet of bridge abutments.
- Embankment within 200 feet of bridge abutments.
- Subgrade cut portions of the project.
- Embankment in pipe culvert, sewer and waterline trenches.
- Structure and granular backfill placed at bridge abutments.
- 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, and 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.

Provide copies of the field density and field moisture running average calculation sheets, records of procedure adjustments, and soil changes to the engineer and QV personnel 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.

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. Use 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 during the project. Include the daily documentation and a summary of the cumulative quantity of untested embankment material with the project records.

B.7.3 Testing Frequency

B.7.3.1 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.

B.7.3.2 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.

B.7.3.3 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.7.3.4 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 in this section. 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.

B.7.3.5 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.

B.7.3.6 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.

B.7.4 Control Limits

B.7.4.1 Field Density

B.7.4.1.1 General Conditions

The lower control limit for field density measurements is a minimum of 95.0 percent of the maximum dry density as determined by AASHTO T 99 or T 272for the 4-point running average and a minimum of 92.0 percent of the maximum dry density for any individual test.

B.7.4.1.2 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 percent 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 percent of the maximum dry density for any individual test.

B.7.4.2 Field Moisture Content

The upper control limit for the field moisture content is 105.0 percent 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 is 65.0 percent 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 percent passing the No. 200 sieve.

B.7.5 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.

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 in this special provision 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 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 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 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 all sampling, testing, and documentation required under this special provision are incidental to the work. If the contractor does not 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.

79. QMP Subgrade (UPRR).

A Description

This special provision describes requirements for subgrade materials within the railway foundation as defined in standard spec 101.3. Conform to standard spec 207 as modified in this special provision for all work within the railway foundation at the following locations:

- All UPRR embankment from Station 8RDW+10 to Station 29RDW+45.
- All temporary UPRR embankment from Station 7TRDW+67 to Station 28TRDW+91.

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:

https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/rdwy/default.aspx

B Materials

B.1 Quality Control Plan

Submit a comprehensive written Quality Control (QC) plan to both the engineer and the UPRR engineer at or before the pre-construction meeting. Do not perform grading work before both the engineer and the UPRR engineer review and accept the plan. Construct the project as the plan provides.

Do not change the quality control plan without the review of both the engineer and UPRR engineer. Update the plan with changes as they become effective. Provide a current copy of the plan to both the engineer and the UPRR 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 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.

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 control charts and other documentation.

A summary of the locations and calculated quantities to be tested under this provision.

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
https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/qual-labs.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 and UPRR 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

https://wisconsindot.gov/Documents/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/ap-current/nuclear-gauge-list-7-5-2017.pdf.

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, WI 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 and UPRR engineer. This procedure will establish the "Validator" apparatus, as the contractor's project reference site.

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 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 ASTM D1557 for railway embankments, 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 both the engineer and the UPRR engineer for review. Obtain acceptance from both before proceeding.

Perform characterization tests on each of the soil types selected for the soil source study. The tests for railway include ASTM D4318, ASTM C136, and ASTM C117. Classify each soil type selected according to the ASTM soil classification system based on the characterization tests. Do not begin grading operations until both the engineer and the UPRR engineer accept 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, and the UPRR engineer if applicable, accept the results before incorporating the material into the railway foundation.

Split each Proctor sample and identify so as to provide comparison with the department's test results. Unless the engineer or the UPRR engineer direct 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 for Embankment carrying UPRR track sections.

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- or UPRR 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, and the UPRR engineer, in a neat and orderly manner within 10 business days after completing subgrade construction.

B.6.2 Records

Document all observations, inspection records, and 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.

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, and the UPRR engineer if applicable, daily.

Submit original testing records to the engineer, and the UPRR 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, and the UPRR engineer if applicable, 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.

Test areas of suspect compaction or areas which appear to be nonconforming as determined by the engineer, and the UPRR engineer if applicable.

B.7.2 Field Density and Field Moisture

Perform the field density and field moisture tests using the nuclear density meter method according to ASTM D 6938 for railway embankments. 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. Use the representative

samples retained from the soil source study when performing the textural identification. Use a coarse particle correction according to ASTM D4718 for railway embankments.

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 ASTM D1557 for railway 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 during 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 for railway embankments as a guide in this determination.

B.7.4 Testing Frequency

B.7.4.1 Embankment carrying UPRR track sections

Perform the required tests at the following minimum frequencies:

Test	Minimum Frequency
Field Density (ASTM D6938)	One test per 2,000 square yards of fill per lift or one test per 1,000 feet of alignment or one test per grading area per day whichever yields the most tests.
One-Point Proctor AASHTO T 272	One test per 6,000 cubic yards or when a change in fill material occurs.

B.7.4.2 Open Graded Base Aggregate at UPRR Bridge Abutments

Refer to Base Aggregate Open Graded Special elsewhere in these special provisions, for compaction requirements.

B.7.5 Compaction Zones

B.7.5.1 Embankment Carrying UPRR Track Sections

All embankment carrying UPRR track sections is subject to the quality controls for UPRR embankment material. All material tested will be held to the same control limits.

B.7.6 Control Limits

B.7.6.1 Field Density

B.7.6.1.1 Embankments carrying UPRR track sections

Except in locations noted in subsection B.7.6.1.2 below, the lower control limit for field density measurements is a minimum of 95.0 percent of the maximum dry density as determined by ASTM D1557 or T 272 for the 4-point running average and a minimum of 90.0 percent of the maximum dry density for any individual test.

B.7.6.1.2 Embankments carrying UPRR track sections near structures

When embankments that carry UPRR track sections are located within 20 feet of each side of culverts and within 100 feet behind each railway bridge abutment, the lower control limit for field density measurements is a minimum of 100.0% of the maximum dry density as determined by ASTM D1557 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 is 106.0 percent of the optimum moisture as determined by ASTM D1557 Modified Proctor or T 272, for the 4-point running average.

The lower control limit for the field moisture content is 100.0 percent of the determined optimum moisture for the 4-point running average.

There are no control limits for the field moisture of material having less than 5 percent passing the No. 200 sieve, although make every effort to keep near the optimum moisture content.

B.7.6.2.2 Embankment carrying UPRR track sections

Determine all compaction using ASTM D6938 and ASTM D1557 for moisture and density and for field tests. Provide copies of all soils tests and observations to the engineer and the UPRR engineer. The UPRR engineer will not approve placing sub-ballast before these tests are received.

B.7.7 Corrective Action

Notify the engineer and the UPRR 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 and the UPRR 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.

Notify the engineer and the UPRR 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 and the UPRR 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 in this special provision 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, and the UPRR engineer if applicable, 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, and the UPRR engineer if applicable, 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 the UPRR engineer if applicable, 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 or UPRR engineer request to correct a deficiency or resolve a testing discrepancy, the engineer or UPRR 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, or UPRR engineer if applicable, may suspend grading work until action is taken. Resolve disputes as specified in B.9.

B.9 Dispute Resolution

The engineer and UPRR engineer, and the contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor’s and the engineer’s or UPRR engineer’s testing program does occur, seek a solution mutually agreeable to the project personnel. The UPRR, 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, UPRR 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 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.

SEF Rev. 17_0310

80. Embankment at Union Pacific Railroad

Modify standard spec 207.2(2) with the following:

For the top 12 inches of railway earth embankments, use materials free from large stone, rock, and broken concrete or other materials that significantly affect scarifying, compacting and finishing the subgrade.

Supplement standard spec 207.2 with the following:

(4) For railway embankments, material used shall be Backfill Granular Grade 2 containing no logs, stumps, brush, or other perishable material.

Supplement standard spec 207.3.2 with the following:

(2) Prepare foundations and subgrade for proposed embankments and fills in railway limits by scarifying the top 6-inch layer of the existing ground, adjusting the moisture content of the scarified material and compacting the scarified soils as specified in 207.3.6.3 (3).

Supplement standard spec 207.3.6.1 with the following:

(5) Use special compaction for railway embankments as described in standard spec 207.3.6.3.

Supplement standard spec 207.3.6.3(3) with the following:

Compact all railway embankments to 100 percent of maximum dry density within 20 feet of each side of culverts and within 100 feet behind each railway bridge abutment; compact all other railway embankments to 95 percent of maximum dry density elsewhere.

Supplement standard spec 207.3.6.3(4) with the following:

Determine the maximum dry density of all railway embankments according to ASTM D1557. Use a department-qualified laboratory for this determination. The engineer or UPRR engineer may elect to perform quality assurance testing on split samples of the proposed material. Determine the in-place dry density of compacted embankment material according to ASTM D1556 or by other engineer- or UPRR engineer-approved methods. Provide the results of the density testing to the engineer and the UPRR engineer within 24 hours of the testing. Frequency of compaction testing shall be one test per 2000 square feet per lift of embankment.

Verify the angle of internal friction through the Direct Shear Test in conformance to AASHTO T-236. Perform one test for every 1000 cubic yards of compacted material placed as part of the track subgrade. Compact tested material using similar procedures described above for field compaction. Report the results to the engineer and UPRR engineer for approval.

Supplement standard spec 207.5 with the following:

Determination of dry density and compaction testing will be incidental to embankment construction and no separate payment will be made.

81. QMP Base Aggregate Lab Location.

Add the following as paragraph 2 to "B.3 Laboratory" of the QMP Base Aggregate special provision:

(2) Locate the QC laboratory for base aggregate placement sample testing within 30 miles of the project.

stp-301-020 (20080902)

82. Base Aggregate Dense 1 1/4-Inch for Lower Base Layers.

Replace standard spec 305.2.2.1(2) with the following:

(2) Unless the plans or special provisions specify otherwise, do the following:

1. Use 1 1/4-inch base throughout the full base depth.
2. Use 3/4-inch base in the top 3 inches of the unpaved portion of shoulders. Use 3/4-inch base or 1 1/4-inch base elsewhere in shoulders.

stp-305-020 (20080902)

83. Base Aggregate Dense 1 1/4-Inch Special.

A Description

This special provision describes furnishing and placing material for the railroad embankments at the locations shown on the plan according to this special provision.

B Materials

Provide a granular material as specified in standard spec 305 for the Base Aggregate Dense 1 1/4-Inch bid item except as follows:

- Furnish crushed quarry stone from a department-approved source. A department-approved source is any quarry with acceptable department test results for wear and soundness on record. Do not use material produced from sand and gravel deposits.
- Furnish material conforming to the requirements for dense graded crushed stone and crushed gravel as specified in standard spec 301.2.4.5, Table 301-2 tions except as follows:

a. The loss by weight for freeze/thaw soundness shall be no more than 10%.

b. The minimum one face fracture count shall be 100%.

Conform to the following gradation requirement;

Sieve Size	2-inch	1-inch	3/8-inch	No. 10	No. 40	No. 200
% passing (opt.)	100	95	67	38	21	3
% passing (perm.)	100	90-100	50-84	26-50	12-30	0-8

C Construction

Construct embankments conforming to standard spec 207 of the standard specs and these special conditions except as herein specified.

C.1 Lift Thickness

If the required compacted depth of the embankment exceeds 6 inches, construct in two or more layers of approximately equal thickness. The maximum compacted thickness of any one layer shall not exceed 6 inches and shall be compacted to a density of not less than 95 percent modified proctor compaction.

If the material is laid and compacted in more than one layer, plan and coordinate this work in such a manner that the previously placed and compacted layers be allowed ample time for curing and development of sufficient stability before vehicles hauling materials for the succeeding layers, or other heavy equipment are permitted on the embankment. Prior to placing the succeeding layers of material, the top of the under layer shall be sufficiently moist to ensure a strong bond between the layers. The edges and/or edge slopes of the embankment shall be bladed or otherwise dressed to conform to the

lines and dimensions shown on the plans and present straight neat, and workmanlike lines and/or slopes as free of loose material as practicable.

C.2 Field Testing

Verify the angle of internal friction through the Direct Shear Test in conformance to AASHTO T-236. Perform one test for every 1000 cubic yards of compacted material placed behind precast concrete modular retaining walls only. Compact tested material using similar procedures described above for field compaction. Report the results to the engineer and the UPRR engineer for approval.

D Measurement

If used, Base Aggregate Dense 1¼-Inch Special 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 Backfill Modular Retaining Wall in the contract documents and shall include all work required in this special provision.

84. Select Crushed Material

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 the contractor to sample, test, and report gradation or the fracture results to show conformance of the 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.

SER-321-001 (20160831)

85. 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 conforming to the Special Provision Concrete Pavement 12-Inch Special.

sef-415-010 (20170310)

86. Concrete Pavement Joint Layout, Item 415.5110.S.

A Description

This special provision describes providing a concrete pavement or concrete base joint layout design for intersections, ramps, and mainline pavement and marking the location of 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 at least 7 calendar days before paving. Do not lay out joints until the engineer has reviewed the joint layout design. Mark the location of concrete joints in the field prior to or after paving. 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 for all joint layout designs and marking, 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
415.5110.S	Concrete Pavement Joint Layout	LS

Payment is full compensation for providing 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.

87. 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.....415.3.12
Duration of the cold weather protection period 415.3.13
Opening to service.....415.3.15
Removing falsework.....502.3.4.2
Duration of the required curing period 502.3.8
Duration of the cold weather protection period 502.3.9
Opening to service.....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 used on the project. Devices provided for the department use will become department property under the contract.

C Construction

Perform concrete maturity testing conforming 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-502-005 (20170310)

88. 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 except 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.

https://wisconsindot.gov/rdwy/cmm/cm-08-00toc.pdf

(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/

B Materials

B.1 Personnel

(1) Nuclear gauge owners and personnel using nuclear gauges shall comply with WisDOT requirements according to 460.3.3 and CMM 8-15.

B.2 Testing

(1) Conform to ASTM D2950 and CMM 8.15 for density testing and gauge monitoring methods. Conform to CMM 8-15.10.4 for test duration and gauge placement.

B.3 Equipment

B.3.1 General

(1) Furnish nuclear gauges according to CMM 8-15.2.

(2) Furnish nuclear gauges from the department's approved product list at

https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/default.aspx

B.3.2 Comparison of Nuclear Gauges

B.3.2.1 Comparison of QC and QV Nuclear Gauges

(1) Compare QC and QV nuclear gauges according to CMM 8-15.7.

B.3.2.2 Comparison Monitoring

(1) Conduct reference site monitoring for both QC and QV gauges according to CMM 8-15.

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) Divide the pavement into lots and sublots for nuclear density testing according to CMM 8-15.10.2.

(2) Determine required number of tests according to CMM 8-15.10.2.1.

(3) Determine random testing locations according to CMM 8-15.10.3.

B.4.1.2 Side Roads, Crossovers, Turn Lanes, Ramps, and Roundabouts

(1) Divide the pavement into lots and sublots for nuclear density testing according to CMM 8-15.10.2.

(2) Determine required number of tests according to CMM 8-15.10.2.2.

(3) Determine random testing locations according to CMM 8-15.10.3.

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 as specified in 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 as specified in 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 comparison according to B.3.2.1.

(2) The testers may use comparison 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-compared 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 as specified in standard spec 460.5.2.2.

E.3 Incentive for HMA Pavement Density

(1) The department will administer density incentives as specified in standard spec 460.5.2.3.

stp-460-020 (20181119)

89. 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 HT under standard spec 460.2; except the engineer will not require the contractor to conform to the quality management program (QMP) specified under standard spec 460.2.8.

sef-465-005 (20170310)

90. Cold Patch, Item 495.1000.S.

A Description

This special provision describes furnishing cold patch and filling potholes and other voids in existing pavement surfaces as the engineer directs.

B Materials

Furnish a mixture of course aggregate, natural sand, and MC-250 bituminous material designed to have a workability range of 15-100º F without heating. Ensure that the mixture:

- Adheres to wet surfaces.
- Resists damage from water, salt, and deicing products.
- Requires no mixing or special handling before use.
- Supports traffic immediately after placement and compaction.

Conform to the following gradation:

SIEVE SIZE	PERCENT PASSING (by weight)
1/2-inch (12.5 mm)	100
3/8-inch (9.5 mm)	90 - 100
No. 4 (4.75 mm)	90 max
No. 8 (2.38 mm)	20 - 65
No. 200 (0.074 mm)	2 - 10
Bitumen	4.8 - 5.4

The department will accept cold patch based primarily on the engineer's visual inspection. The department may also test for gradation.

C Construction

Stockpile cold patch on site on a smooth, firm, well-drained area cleared of vegetation and foreign material. Cover the stockpile and ensure that it is easily accessible. Replenish the stockpile throughout the project duration but limit the size at any given time to 10 tons on site unless the engineer approves otherwise. Dispose of unused material at project completion unless the engineer directs otherwise.

Place cold patch by hand. Remove ponded water and loose debris before placement. Compact flush with a tamper, roller, or vehicle tire after placement.

Refill patched areas as necessary to maintain a flush pavement surface until project completion.

D Measurement

The department will measure Cold Patch by the ton, acceptably stockpiled on site.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
495.1000.S	Cold Patch	TON

Payment for Cold Patch is full compensation for providing and maintaining patches; for furnishing and replenishing stockpiled material on-site; and for disposing of excess material at project completion.

stp-495-010 (20160607)

91. Concrete Masonry Structures.

A Description

A.1 General

Work under this item applies to cast in place concrete for structures. Conform to standard spec 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
504.0500	Concrete Masonry Retaining Walls
502.0110.S	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 (Vacant)

C Construction

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. 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, do not place concrete under the following bid items:

- Concrete Masonry Bridges
- Concrete Masonry Retaining Walls
- Concrete Masonry Soldier Pile Footings

Notify the engineer whenever conditions exist that might cause the temperature at the point of placement to exceed 80 F. 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, excluding the addition of ice to the concrete mix, is considered incidental to the work and will not be measured or paid for separately.

Add the following to standard spec 501.3 as subsection eleven:

501.3.11 Slip Forming

Do not place concrete by the slip-form method for any item covered by this special provision.

D (Vacant)

E (Vacant)

sef-504-005 (20180104)

92. Concrete Masonry Soldier Pile Footings UPRR.

A Description

This special provision describes furnishing and placing concrete in predrilled holes for soldier piles and installation of soldier piles. Perform work according 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 according to standard spec 716 for Class II Ancillary Concrete.

C Construction

Ensure the engineer and the UPRR engineer allowance for inspection of the predrilled holes, soldier piles, and casting preparations no later than 24 hours after excavation is complete. Place concrete within three hours after excavation inspection and approval unless otherwise directed by the engineer, and the UPRR engineer if applicable. If the concrete is not placed within this time frame, the excavation must be re inspected and accepted by the engineer, and the UPRR engineer if applicable, prior to concrete placement. For concrete masonry soldier 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 soldier pile installation and immediately prior to placing concrete masonry in the hole around the soldier 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

If used, Concrete Masonry Soldier Pile Footings UPRR 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 Temporary Shoring Railroad Type A in the contract documents and shall include all work required in this special provision.

93. Deadman Tiebacks UPRR.

A Description

A.1 General

This special provision describes furnishing and installing tiebacks from temporary abutment and wingwall faces to deadman piling or opposing wingwall faces. Perform work according to the plans, and as hereinafter provided.

A.2 Qualifications of the Contractor

The contractor performing the work described in these special provisions must have successfully installed either similar deadman tieback anchors or ground anchors for retaining walls for a minimum of 2 years. Submit a list containing at least one project where the contractor has installed similar deadman tiebacks. The project experience documentation must include a brief project description, construction methods used during installation, local soil conditions, actual construction time and owner's contact information consisting of an individual's name and current phone number. Contacts must be capable of verifying contractor's project participation.

Assign an engineer to supervise the work who has at least two years of experience in the design and construction of similar deadman tiebacks. On-site supervisors must have a minimum of one-year experience installing similar deadman tiebacks with the contractor's organization.

Submit your certifications, qualifications and staff experience records at the preconstruction meeting or 21 calendar days prior to the start of deadman tieback 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 deadman tieback installation until approval of the contractor's qualifications and staff experience are given by the engineer. The engineer may suspend the deadman tieback 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

Prepare and submit to the engineer and the UPRR engineer for review and approval working drawings and a design submission describing the anchor system or systems intended for use. The contractor may use either the anchor design detailed in the plans, or the contractor may submit an alternative design. The alternative design must be sealed and signed by a professional engineer licensed in the state of Wisconsin. It must conform to the current editions of AREMA and ACI applicable provisions for both design methodology and minimum applicable resistance factors, and it must address the effects of bond strength and edge effects, if applicable, on design.

Submit 30 business days before the commencement of the deadman tieback work, all working drawings, design submission and Manufacturer's Printed Installation Instructions (MPII).

Submit to the engineer and the UPRR engineer for review and approval or rejection mill test reports for the steel elements of the deadman tieback. The engineer or the UPRR engineer may require the contractor to provide samples of any anchor material intended for use on the project. The engineer, and the UPRR engineer if applicable, will approve or reject the anchoring materials within five business days after receipt of the test reports. Do not incorporate the anchoring materials in the work without the engineer's and the UPRR engineer's approval.

Submit to the engineer and the UPRR engineer within 10 calendar days after completion of the deadman tieback work, a report containing the following information:

- As-Built plans showing the location and vertical and horizontal orientation of the tiebacks, proof resistance, and total length as installed.
- Other records as required by standard spec 106.

B Materials

Fabricate the bearing plate from steel grade conforming to that as specified on the plans.

Fabricate anchor rods from a single bar conforming to ASTM A722.

Use steel couplers capable of developing 95 percent of the minimum specified ultimate tensile strength of the bar.

Provide PVC tube sleeves for settlement protection as the plans show.

Damage to the threaded rods because of abrasions, cuts, nicks, welds and weld splatter will be cause for rejection by the engineer or the UPRR engineer. Protect the threaded rods if welding is to be performed in the vicinity. Grounding of welding leads to the threaded rods is forbidden. Protect the threaded rods from dirt, rust or deleterious substances. If heavy corrosion or pitting is noted, the engineer or the UPRR engineer will reject the affected rods.

Use care in handling and storing the threaded rods at the site.

C Construction

C.1 Anchor Installation

Install anchors according to supplier's recommended installation to develop the required structural resistance of the threaded rod. Connect the tie rod anchor to the deadman according to the details on the plans for each location, and the threaded rod supplier's recommendations. All threaded rods shall be anchored to the bulkheads with a tension load enough to provide a plumb vertical face for the supported structure. Threaded rods at a minimum shall be "snug-tight" using turn-of-the-nut methodology.

C.2 Acceptance Criterion

A tieback anchor is considered acceptable if the supported structure is no greater than 1/16" per foot out of plumb. If a tieback anchor fails this criterion, modify the design and/or the construction procedures. These modifications may include, but are not limited to, installing replacement tieback anchors, reducing the design load by increasing the number of tieback anchors or modifying the installation methods. Any modifications of design or construction procedures are at no cost to the department and no increase in contract time and must be approved by the engineer and the UPRR engineer.

C.3 Installation of Settlement Sleeve

Install a settlement sleeve as the plans show around the anchor before backfilling above the anchor. Do not mechanically attached the settlement sleeve to the deadman. Set the settlement sleeve so that the anchor is located in the bottom of the sleeve.

D Measurement

If used, Deadman Tiebacks UPRR 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 Temporary Shoring Railroad Type A in the contract documents and shall include all work required in this special provision.

94. QMP Drilled Shafts.

A General

Perform this work according 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.0090.4028	Drilled Foundation Shaft 59.06-Inch
SPV.0090.4048	Wall Secant Pile 59.06-Inch
SPV.0105.4008	Trial Wall Panel Secant Pile 59.06-Inch
SPV.0090.4050	Wall Tangent Pile 36-Inch
SPV.0105.4010	Trial Wall Panel Tangent Pile 36-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. Limit fly ash to 15% of cementitious material. 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 coarse 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 the UPRR 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. Polymer slurry shall be a suspension of powdered polyacrylamide or vinyl polymer with the following characteristics:

Property at 60°F Units	Mineral Slurry	Polymer Slurry	Test Method
Density in Fresh Water (lb/ft^3) (a)	85 max (no end bearing) 70 max (w/end bearing)	64 max	ASTM D4380
Viscosity (sec/quart)	26 to 50	40 to 90 (c)	Marsh Funnel API-RPI3B-1, Sect. 2
pH	7 to 12	7 to 12	ASTM D4972

Sand Content (%) (b)	20 max (no end bearing) 4 max (w/end bearing)	1 max	200 Sieve Retain

(a) 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.
(c) Or per manufacturers recommendations and approved by the engineer and the UPRR engineer.

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.

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 may reduce the contractor's pay.

95. 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 according to ASTM C 1315 8.7.6 Yellowing Resistance.

96. 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 according to standard spec 501.2.5.3, number 1 and number 2 coarse aggregates conforming to standard spec 501.2.5.4, and water conforming to standard spec 501.2.4 in the backfill slurry mix. Provide a combined aggregate gradation for the backfill slurry mix conforming to standard spec 715.2.2. 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.

97. Ice Hot Weather Concreting, Item 501.1000.S.

Conform to standard spec 501.3.8.2 except the department will pay for ice at the contract unit price under the Ice Hot Weather Concreting bid item. This special provision only applies to work done under the following contract bid items:

Concrete Masonry Bridges	Concrete Masonry Retaining Walls
Concrete Masonry Bridges HES	Concrete Masonry Retaining Walls HES
Concrete Masonry Culverts	Concrete Masonry Endwalls
Concrete Masonry Culverts HES	Concrete Masonry Overlay Decks
Concrete Barrier (type)	Concrete Barrier Transition (type)
High Performance Concrete (HPC) Masonry Structures	

Replace standard spec 501.4 and 501.5 with the following:

501.4 Measurement

(1) The department will measure Ice Hot Weather Concreting by the pound acceptably completed, measured only if the conditions prescribed in standard spec 501.3.8.2 are met.

501.5 Payment

(1) The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
501.1000.S	Ice Hot Weather Concreting	LB

(2) Payment for Ice Hot Weather Concreting is full compensation for ice used to cool concrete placed in hot weather as specified in standard spec 501.3.8.2.

(3) The department will not pay directly for the concrete specified under this section. Concrete is incidental to the various bid items using it. Payment under those bid items includes providing all materials, including aggregates and associated aggregate source testing, cement, fly ash, slag, and admixtures; for preparing, transporting, storing, protecting and curing concrete; and for contractor requirements related to testing specified in standard spec 501.3.10.

(4) If required to remove and replace any concrete damaged by lack of proper protection. Perform this work at no expense to the department.

stp-501-010 (20151210)

98. Concrete Masonry Soldier Pile Footings, Item 502.0110.S.

A Description

This special provision describes furnishing and placing concrete into predrilled holes for soldier piles and installing soldier piles. Perform work conforming to standard spec 502.

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. Perform QMP testing conforming to standard spec 716 for Class II Ancillary Concrete for all concrete masonry for Concrete Masonry Soldier Pile Footings.

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 before beginning solider pile installation and immediately before 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 measure Concrete Masonry Soldier Pile Footings by the cubic yard, acceptably completed. The department will only include material within the limits and in the places the plans show.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
502.0110.S	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, and protecting installation of soldier piles.

stp-502-030 (20161130)

99. Expansion Device.

A Description

This special provision describes furnishing and installing an expansion device as the plans show conforming to standard spec 502 as modified in this special provision.

B Materials

The minimum thickness of the polychloroprene strip seal shall be 1/4 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	55 ± 5 pts.	ASTM D2240

	Model Number Strip Seal Gland Size[1]		
Manufacturer	**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	-----	-----

[1] Expansion device strip seal gland size requirement of 4", 5", and 6" shall be as the plans show.

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.

stp-502-020 (20171130)

100. Expansion Device Modular, Item 502.3111.S.0007.

A Description

This special provision describes furnishing and installing shop-fabricated waterproof modular expansion devices as the plans show conforming to standard spec 502 as modified in this special provision. Ensure that modular expansion joint devices seal the deck surface, curbs, gutters, and parapet walls as the plans indicate. Leaking or seeping of water through the joint will be cause for rejection of modular expansion devices.

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 the standard spec, 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 D-Series
(419) 257-3561

R.J. Watson, Inc., Modular RJW-Series
(716) 741-2166

Watson, Bowman, & Acme Inc., Wabo-Maurer 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 F3125. Secondary shapes or joint components may be assembled with bolts, nuts, and washer 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 1/4 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%	D395 Method, B Modified
Ozone Resistance, after 70 hours at 100º F under 20% Strain with 100 pphm ozone	No Cracks	ASTM D1149 & 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.

B.5 Support Bars

Place support bars parallel to the roadway at a maximum support assembly spacing of 4'-0". Furnish support bars that are not less than 1 1/2 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 3/4 inch.

B.6 Transverse Center Beams

Transverse center beams shall be at least of 4 1/2 inches in height and have a minimum vertical web thickness of 3/4 inch. Design transverse center beams for an AASHTO HS25 live loading plus 30 percent impact. 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 3/4 inch.

The connections between the transverse center beams and support bars shall be a full penetration weld according to the plan details. Full penetration welds to be tested by ultrasound using the compressive criteria.

B.7 Support Bar Boxes

Furnish support bar boxes that consist of steel plates not less than 1/2 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 the plans show.

B.8 Structural Steel Surfaces

Galvanize after fabrication, according to ASTM A123, all structural steel surfaces of the expansion joint devices and anchorages, except ASTM A-490 bolts, components of stainless steel, and parts coated with polyurethane, adipene, nylon, or Teflon.

Galvanize or metallize conforming to standard spec 635 all bolts, nuts, washers, and steel components that are not galvanized using the above procedure, including all ASTM A-490 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 according 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 1/4 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 conforming to standard spec 635. Make field splices in transverse center roadway sections with a partial penetration weld.

C Construction

The manufacturer of the prefabricated expansion joint assembly shall prepare shop drawings showing details of the assembly and installation. Submit shop drawings to the engineer conforming to standard spec 105.2 with electronic submittal to the fabrication library under standard spec 105.2.2. Department review does not relieve the contractor from responsibility for errors or omissions on shop drawings.

Support the modular joint assembly at 8’-0 minimum spacing along both sides of the joint. Construct the modular expansion device system according to the details shown on the shop drawings. Tolerance requirements shall be according to AASHTO specifications.

Install according to the plan details, the manufacturer’s and supplier’s approved shop drawings, and as the engineer directs. In addition, the manufacturer shall submit current product literature with the shop drawings and the shop drawings shall reflect that literature.

Remove all modular expansion joint forming material from the joint opening. Pre-set the modular joint assembly according to the approved shop drawings, joint temperature setting data, and specifications. The maximum joint opening for a single modular unit shall be 3 inches.

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 before the date of installation.

D Measurement

The department will measure Expansion Device Modular (Structure) 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
502.3111.S.0007	Expansion Device Modular	LF

Payment is full compensation for 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.

stp-502-021 (20190618)

101. 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. Provide stainless steel couplers conforming to the minimum capacity, certification, proof testing, and written approval requirements of standard spec 550.3.3.4. The contractor may substitute stainless steel couplers for lap slices the plans show if the engineer approves in writing.

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.

The department will measure the Bar Couplers Stainless bid items as each individual coupler, 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
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.

stp-505-005 (20190618)

102. Early Shop Drawing Notice to Proceed for Structure B-40-878.

Upon initial award of the contract, the contractor is authorized to immediately begin shop drawing preparation according to 506.3.2 for the structural steel for both temporary and permanent structures of B-40-878. Do not place the mill plate order for structural steel or begin any other work in the contract until receiving written notification to proceed from the engineer and the UPRR engineer. In the event the contract is ultimately not executed, the department will reimburse the contractor for the reasonable costs of the advance preparation of the shop drawings and mill plate order.

103. Fracture Critical Material for Union Pacific Railroad Company Structures.

Supplement standard spec 506.2.2.3 with the following:

(2) For steel members designated FCM (Fracture Critical Material), manufacture using killed fine grain practice.

104. Fabricator Certification for Union Pacific Railroad Company Structures.

Supplement standard spec 506.3.2 of the standard specifications with the following:

(3) Perform fabrication of structural steel using a fabricator that has completed the AISC Quality Certification Program for Major Steel Bridges (CBR). Provide documentation to the UPRR engineer and the engineer for approval before beginning fabrication.

105. Shop Assembly for Union Pacific Railroad Company Structures.

Supplement standard spec 506.3.2 with the following:

(5) Shop-assemble spans and make available for inspection by the engineer and UPRR engineer at the fabricator's plant before the steel is disassembled and shipped to the erection site.

106. Shop and Field Weld Inspection and Testing for Union Pacific Railroad Company Structures.

Supplement standard spec 506.3.19.1 with the following:

(4) Use only AWS prequalified welded joints. Submit all welding sequences and procedures, and alternative joint details to the engineer and the UPRR engineer for review and approval before fabrication. Minimize distortion during welding.

Replace standard spec 506.3.19.4 with the following:

506.3.19.4 Shop and Field Welding Inspection and Testing

(1) Inspect shop and field welding according to AREMA Chapter 15 and AWS D 1.5, Section 3.5, and as follows in subsequent paragraphs in this section. Use an independent welding testing service.

(2) Use the radiographic testing method to inspect 100% of all full penetration welds in girder webs and flanges. Grind welds prior to radiographing.

(3) Use the magnetic particle testing method to inspect 100% of all flange to web welds and all fillet welds on bearing stiffeners.

(4) Use the radiographic testing method or the magnetic particle testing method to inspect 25% of all other welds. If any defects are found, then increase the testing frequency using either of these methods to 100% inspection of all other welds.

(5) Re-test welds requiring repair after repairs are made.

(6) Perform the inspections according to AWS D 1.5, Chapter 6. Furnish the testing results to the engineer and UPRR engineer. Report the location and amount of inspection in linear feet, location and length of any defects, any re-testing after repairs, any rejected work and the means of repair, and furnish a certification that inspection tests were performed according to these specifications.

107. Timber Lagging UPRR.

A Description

Work under this item consists of furnishing, delivering, and installing all timber lagging for soldier pile and lagging walls. Perform work according 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, No. 1 grade or better with a minimum thickness of 6-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

If used, Timber Lagging UPRR 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 Temporary Shoring Railroad Type A in the contract documents and shall include all work required in this special provision.

108. Sawing Pavement Deck Preparation Areas, Item 509.0310.S.

A Description

This special provision describes sawing around deteriorated areas requiring deck repairs under the Preparation Decks bid items on decks receiving asphalt or polymer overlays and for deck repairs that will not receive an overlay.

B (Vacant)

C Construction

The department will sound and mark areas of deteriorated concrete that require deck preparation. The engineer may identify and mark additional areas as the work is being performed.

Wet cut a minimum of 1 inch deep and at least 2 inches outside of the marked areas. Bound each marked area by providing cuts aligned parallel and perpendicular to the deck centerline.

Remove sawing sludge after completing each area. Do not allow sludge or resulting residue to enter a live lane of traffic, storm sewer, stream, lake, reservoir, marsh, or wetland. Dispose of sludge at an acceptable material disposal site located off the project limits or, if the engineer allows, within the project limits.

D Measurement

The department will measure Sawing Pavement Deck Preparation Areas by the linear foot acceptably completed, measured as the total linear feet of bounding cuts.

The department will not measure for payment over-cuts or cuts made beyond what is required to bound engineer-marked deterioration limits.

E Payment

The department will pay for the measured quantity at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
509.0310.S	Sawing Pavement Deck Preparation Areas	LF

Payment is full compensation for making all saw cuts; and for debris disposal.

stp-509-070 (20180628)

109. Polymer Overlay, Item 509.5100.S.

A Description

This special provision describes providing two layers of a two-component polymer overlay system to the bridge decks the plans show.

B Materials

B.1 General

Furnish materials specifically designed for use over concrete bridge decks. Furnish polymer liquid binders from the department's approved product list.

B.2 Polymer Resin

Furnish a polymer resin base and hardener composed of two-component, 100 percent solids, 100 percent reactive, thermosetting compound with the following properties:

Property	Requirements	Test Method
Gel Time[1]	15 - 45 minutes @ 73° to 75° F	ASTM C881
Viscosity[1]	7 - 70 poises	ASTM D2393, Brookfield RVT, Spindle No. 3, 20 rpm
Shore D Hardness[2]	60-75	ASTM D2240
Absorption[2]	1% maximum at 24 hr	ASTM D570
Tensile Elongation[2]	30% - 70% @ 7 days	ASTM D638
Tensile Strength[2]	2000 to 5000 psi @ 7 days	ASTM D638
Chloride Permeability[2]	<100 coulombs @ 28 days	AASHTO T277

[1] Uncured, mixed polymer binder

[2] Cured, mixed polymer binder

Ensure that the polymer resin when mixed with aggregate has the following properties:

Property	Requirement[1]	Test Method
Minimum Compressive Strength	1,000 psi @ 8 hrs 5,000 psi @ 24 hrs	ASTM C579 Method B, Modified[2]
Thermal Compatibility	No Delaminations	ASTM C884
Minimum Pull-off Strength	250 psi @ 24 hrs	ASTM C1583

[1] Based on samples cured or aged and tested at 75°F

[2] Plastic inserts that will provide 2-inch by 2-inch cubes shall be placed in the oversized brass molds.

B.3 Aggregates

Furnish natural or synthetic aggregate that is non-polishing; clean; free of surface moisture; fractured or angular in shape; free from silt, clay, asphalt, or other organic materials; and conform to the following:

Aggregate Properties

Property	Requirement	Test Method
Moisture Content[1]	1/2 of the measured aggregate absorption, %	ASTM C566
Hardness	³ 6.5	Mohs Scale
Fractured Faces	100% with at least 1 fractured face & 80% with at least 2 fractured faces of material retained on No.16	ASTM D5821
Absorption		ASTM C128

[1] Sampled and tested by the department before placement.

Gradation

Sieve Size	% Passing by Weight
No. 4	100
No. 8	30 – 75
No. 16	0 – 5
No. 30	0 – 1

B.4 Approval of Bridge Deck Polymer Overlay System

A minimum of 20 working days before application, submit product data sheets and specifications from the manufacturer, and a certified report of test or analysis from an independent laboratory to the engineer for approval. The department will sample and test the aggregates for gradation and moisture content before placement. If requested, supply the department with samples of the polymer for the purpose of acceptance testing.

B.4.1 Product Data Sheets and Specifications

Product data sheets and specifications from the manufacture consists of literature from the manufacturer showing general instructions, application recommendations/methods, product properties, general instructions, or any other applicable information.

B.4.2 Certified Report of Test or Analysis

Conform to the following:

Polymer Binder: Submit a certified report of test or analysis from an independent laboratory dated less than 3 years before the date of the project letting showing the polymer binder meets the requirements of section B.2.

Aggregates: Submit a certified report of test or analysis from an independent laboratory dated less than 6 months before the date of the project letting showing the aggregates meet the requirements of section B.3.

C Construction

C.1 General

Ensure that the overlay system is 1/4 inch thick or thicker.

Conform to the following:

Field Review: Conduct a field review of the existing deck to identify any possible surface preparation and material compatibility issues.

Pre-Installation Meeting: Conduct a pre-installation meeting with the manufacturer's representative and the engineer before construction. Discuss the field review findings, verification testing of the surface preparation and establish procedures for maintaining optimum working conditions and coordination of work. Furnish the engineer a copy of the recommended procedures and apply the overlay system according to the manufacturer's instructions. Supply for the engineer's use for the duration of the project, a Concrete Surface Profile (CSP) chip set of 10 from the International Concrete Repair Institute (ICRI).

Manufacturer's Representative: An experienced manufacturer's representative familiar with the overlay system installation procedures shall be present at all times during surface preparation and overlay placement to provide quality assurance that the work is being performed properly. This requirement may be reduced at the engineer's discretion.

Material Storage: Store and handle materials according to the manufacturer's recommendations. Store resin materials in their original containers in a dry area. Store all aggregates in a dry environment and protect aggregates from contaminants on the job site.

C.2 Deck Preparation

C.2.1 Deck Repair

Remove all asphaltic patches and unsound or disintegrated areas of the concrete decks as the plans show, or as the engineer directs. Work performed to repair the concrete deck will be paid for under other items. Ensure that products used for deck patching are compatible with the polymer overlay system.

NOTE: Some polymer systems require concrete patch material to be in place a minimum of 28-days before overlaying - contact polymer manufacturer before completing deck patching/repair.

C.2.2 Surface Preparation

Determine an acceptable shotblasting machine operation (size of shot, flow of shot, forward speed, and/or number of passes) that provides a surface profile meeting CSP 5 (medium-heavy shotblast) according to the ICRI Technical Guideline No. 310.2. If the engineer requires additional verification of the surface preparation, test the tensile bond strength according to ASTM C1593. The surface preparation will be considered acceptable if the tensile bond strength is greater than or equal to 250 psi or the failure area at a depth of 1/4 inches or more is greater than 50 percent of the test area. Continue adjustment of the shotblasting machine and necessary testing until the surface is acceptable to the engineer or a passing test result is obtained.

Prepare the entire deck using the final accepted adjustments to the shotblasting machine as determined above. Thoroughly blast clean with hand-held equipment any areas inaccessible by the shotblasting equipment. Do not perform surface preparation more than 24 hours before the application of the overlay system.

Protect drains, expansion joints, access hatches, or other appurtenances on the deck from damage by the shot and sand blasting operations and from materials adhering and entering. Tape or form all construction joints to provide a clean straight edge.

Before shot blasting, remove pavement markings within the treatment area using an approved mechanical or blasting method.

Prepare the vertical concrete surfaces adjacent to the deck a minimum of 2” above the overlay according to SSPC-SP 13 (free of contaminants, dust, and loose concrete) by sand blasting, using wire wheels, or other approved method.

Just before overlay placement, clean all dust, debris, and concrete fines from the prepared surfaces including the vertical surfaces with compressed air. When using compressed air, the air stream must be free of oil. Any grease, oil, or other foreign matter that rests on or has absorbed into the concrete shall be removed completely. If prepared surfaces (including the first layer of the polymer overlay) are exposed to rain or dew, lightly sandblast (brush/breeze blast) the exposed surfaces.

The engineer may consider alternate surface preparation methods per the overlay system manufacture’s recommendations. The engineer will approve the final surface profile and deck cleanliness before the contractor placing the polymer overlay.

C.2.3 Transitional Area

If the plans show, create a transitional area approaching transverse expansion joints and ends of the deck using an approved mechanical or blasting method. Remove 1/4 inch to 5/16 inch of concrete adjacent to the joint or end of deck and taper a distance of 3 feet.

If the plans show, create a transitional area on the approach pavement. Prep and place the first lift 3 feet beyond the end of the deck the same width as the deck. Prep and place the second lift 6 feet beyond the end of the deck the same width as the deck.

C.3 Overlay Application

Perform the handling and mixing of the polymer resin and hardening agent in a safe manner to achieve the desired results according to the manufacturer’s instructions. Do not apply the overlay system if any of the following exists:

1. Ambient air temperature is below 50 F or above 100 F.
2. Deck temperature is below 50 F.
3. Moisture content in the deck exceeds 4.5 percent when measured by an electronic moisture meter or shows visible moisture after 2 hours when measured according to ASTM D4263.
4. Rain is forecasted during the minimum curing periods listed under C.5.
5. Materials component temperatures below 65 F or above 99 F.
6. Concrete age is less than 28 days unless approved by the engineer.
7. The deck temperature exceeds 100 F.
8. If the gel time is 10 minutes or less at the predicted high air temperature for the day.

After the deck has been shotblasted or during the overlay curing period, only necessary surface preparation and overlay application equipment will be allowed on the deck. Provide appropriate protective measures to prevent contamination from equipment allowed on the deck during preparation and application operations. Begin overlay placement as soon as possible after surface preparation operations.

The polymer overlay shall consist of a two-course application of polymer and aggregate. Each of the two courses shall consist of a layer of polymer covered with a layer of aggregate in sufficient quantity to completely cover the polymer. Apply the polymer and aggregate according to the manufacturer's requirements. Apply the overlay using equipment designed for this purpose. The application machine shall feature positive displacement volumetric metering and be capable of storing and mixing the polymer resins at the proper mix ratio. Disperse the aggregate using a method that provides a uniform, consistent coverage of aggregate and minimizes aggregate rolling or bouncing into final position. First course applications that do not receive enough aggregate before the polymer gels shall be removed and replaced. A second course applied with insufficient aggregate may be left in place but will require additional applications before opening to traffic.

After completion of each course, cure the overlay according to the manufacturer's instructions. Follow the minimum cure times listed under C.5 or as prescribed by the manufacturer. Remove the excess aggregate from the surface treatment by sweeping, blowing, or vacuuming without tearing or damaging the surface; the material may be re-used if approved by the engineer and manufacturer. Apply all courses of the overlay system before opening the area to traffic. Do not allow equipment or traffic on the treated area until directed by the engineer.

After the first layer of coating has cured to the point where the aggregate cannot be pulled out, apply the second layer. Before applying the second layer, broom and blow off the first layer with compressed air to remove all loose excess aggregate.

Before opening to traffic, clean expansion joints and joint seals of all debris and polymer. A minimum of 3 days following opening to traffic, remove loosened aggregates from the deck, expansion joints, and approach pavement.

C.4 Application Rates

Apply the polymer overlay in two separate courses according to the manufacturer's instructions, but not less than the following rate of application.

Course	Minimum Polymer Rate[1] (GAL/100 SF)	Aggregate[2] (LBS/SY)
1	2.5	10+
2	5.0	14+

[1] The minimum total applications rate is 7.5 GAL/100 SF.

[2] Application of aggregate shall be of sufficient quantity to completely cover the polymer.

C.5 Minimum Curing Periods

As a minimum, cure the coating as follows:

	Average temperature of deck, polymer and aggregate components in degrees F							
Course	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-99
1	6 hrs.	5 hrs.	4 hrs.	3 hrs.	2.5 hrs	2 hrs	1.5 hrs.	1 hr.
2	8 hrs.	6.5 hrs.	6.5 hrs.	5 hrs.	4 hrs.	3 hrs.	3 hrs.	3 hrs.

If faster cure times are desired and achievable, submit to the engineer a certified test report from an independent laboratory showing the material is able to reach a compressive strength of 1000 psi as tested per ASTM C 579 Method B within the temperature ranges and cure times for which the product is proposed to be placed. Establish ambient air, material, and substrate temperatures from the manufacturer for field applications. Field applications will not be allowed below the documented temperatures.

C.6 Repair of Polymer Overlay

Repair all areas of unbonded, uncured, or damaged polymer overlay for no additional compensation. Submit repair procedures from the manufacturer to the engineer for approval. Absent a manufacturer's repair procedures and with the approval of the engineer, complete repairs according to the following: Saw cut the limits of the area to the top of the concrete; remove the overlay by scarifying, grinding, or other approved methods; shot blast or sand blast and air blast the concrete before placement of polymer overlay; and place the polymer overlay according to section C.3.

D Measurement

The department will measure Polymer Overlay 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
509.5100.S	Polymer Overlay	SY

Payment is full compensation for preparing the surface; for tensile bond testing; for creating the transitional area; for providing the overlay; for cleanup; and for sweeping/vacuuming and disposing of excess materials.

The department will pay separately for Concrete Deck Repair.

stp-509-030 (20170615)

110. Concrete Staining B-40-792, Item 517.1010.S.0001; Concrete Staining B-40-793, Item 517.1010.S.0002; Concrete Staining B-40-794, Item 517.1010.S.0003; Concrete Staining B-40-875, Item 517.1010.S.0004; Concrete Staining B-40-876, Item 517.1010.S.0005; Concrete Staining B-40-877, Item 517.1010.S.0006; Concrete Staining B-40-878, Item 517.1010.S.0007; Concrete Staining B-40-879, Item 517.1010.S.0008; Concrete Staining R-40-561, Item 517.1010.S.0016; Concrete Staining R-40-564, Item 517.1010.S.0017; Concrete Staining R-40-567, Item 517.1010.S.0018; Concrete Staining R-40-568, Item 517.1010.S.0019; Concrete Staining R-40-569, Item 517.1010.S.0020; Concrete Staining R-40-570, Item 517.1010.S.0021; Concrete Staining R-40-572, Item 517.1010.S.0022; Concrete Staining R-40-573, Item 517.1010.S.0023; Concrete Staining R-40-576, Item 517.1010.S.0024; Concrete Staining R-40-622, Item 517.1010.S.0025; Concrete Staining R-40-632, Item 517.1010.S.0026; Concrete Staining R-40-635, Item 517.1010.S.0027; Concrete Staining S-40-67, Item 517.1010.S.0030; Concrete Staining S-40-69, Item 517.1010.S.0031; Concrete Staining S-40-70, Item 517.1010.S.0032; Concrete Staining S-40-71, Item 517.1010.S.0033; Concrete Staining S-40-73, Item 517.1010.S.0034; Concrete Staining S-40-75, Item 517.1010.S.0035; Concrete Staining S-40-77, Item 517.1010.S.0036; Concrete Staining S-40-145, Item 517.1010.S.0037; Concrete Staining S-40-442, Item 517.1010.S.0038; Concrete Staining S-40-783, Item 517.1010.S.0039; Concrete Staining S-40-784, Item 517.1010.S.0040; Concrete Staining S-40-785, Item 517.1010.S.0041; Concrete Staining S-40-786, Item 517.1010.S.0042; Concrete Staining S-40-967, Item 517.1010.S.0043.

A Description

This special provision describes providing a two coat concrete stain on the exposed concrete surfaces of structures as the plans show.

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 according 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 & 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 according 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, before staining.

C.2 Preparation of Concrete Surfaces

Provide a sack rubbed finish as specified in 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 according 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

Before 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, before 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 according to the plan.

D Measurement

The department will measure Concrete Staining (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
517.1010.S.0001	Concrete Staining B-40-792	SF
517.1010.S.0002	Concrete Staining B-40-793	SF
517.1010.S.0003	Concrete Staining B-40-794	SF
517.1010.S.0004	Concrete Staining B-40-875	SF
517.1010.S.0005	Concrete Staining B-40-876	SF
517.1010.S.0006	Concrete Staining B-40-877	SF
517.1010.S.0007	Concrete Staining B-40-878	SF
517.1010.S.0008	Concrete Staining B-40-879	SF
517.1010.S.0016	Concrete Staining R-40-561	SF
517.1010.S.0017	Concrete Staining R-40-564	SF
517.1010.S.0018	Concrete Staining R-40-567	SF
517.1010.S.0019	Concrete Staining R-40-568	SF
517.1010.S.0020	Concrete Staining R-40-569	SF
517.1010.S.0021	Concrete Staining R-40-570	SF
517.1010.S.0022	Concrete Staining R-40-572	SF
517.1010.S.0023	Concrete Staining R-40-573	SF
517.1010.S.0024	Concrete Staining R-40-576	SF
517.1010.S.0025	Concrete Staining R-40-622	SF
517.1010.S.0026	Concrete Staining R-40-632	SF
517.1010.S.0027	Concrete Staining R-40-635	SF
517.1010.S.0030	Concrete Staining S-40-67	SF
517.1010.S.0031	Concrete Staining S-40-69	SF
517.1010.S.0032	Concrete Staining S-40-70	SF
517.1010.S.0033	Concrete Staining S-40-71	SF
517.1010.S.0034	Concrete Staining S-40-73	SF
517.1010.S.0035	Concrete Staining S-40-75	SF
517.1010.S.0036	Concrete Staining S-40-77	SF
517.1010.S.0037	Concrete Staining S-40-145	SF
517.1010.S.0038	Concrete Staining S-40-442	SF
517.1010.S.0039	Concrete Staining S-40-783	SF
517.1010.S.0040	Concrete Staining S-40-784	SF
517.1010.S.0041	Concrete Staining S-40-785	SF
517.1010.S.0042	Concrete Staining S-40-786	SF
517.1010.S.0043	Concrete Staining S-40-967	SF

Payment is full compensation for furnishing and applying the two coat system; for preparing the concrete surface; and for preparing the sample panels.

stp-517-110 (20140630)

111. Concrete Staining Multi-Color B-40-792, Item 517.1015.S.0001; Concrete Staining Multi-Color B-40-793, Item 517.1015.S.0002; Concrete Staining Multi-Color B-40-794, Item 517.1015.S.0003; Concrete Staining Multi-Color B-40-875, Item 517.1015.S.0004; Concrete Staining Multi-Color B-40-876, Item 517.1015.S.0005; Concrete Staining Multi-Color B-40-877, Item 517.1015.S.0006; Concrete Staining Multi-Color R-40-561, Item 517.1015.S.0010; Concrete Staining Multi-Color R-40-564, Item 517.1015.S.0011; Concrete Staining Multi-Color R-40-568, Item 517.1015.S.0013; Concrete Staining Multi-Color R-40-569, Item 517.1015.S.0014; Concrete Staining Multi-Color R-40-570, Item 517.1015.S.0015; Concrete Staining Multi-Color R-40-572, Item 517.1015.S.0016; Concrete Staining Multi-Color R-40-632, Item 517.1015.S.0017.

A Description

This special provision describes providing a multi-color concrete stain on the exposed concrete surfaces of the structure as the plan details show.

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 according 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 & 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 according 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, before staining.

C.2 Preparation of Concrete Surfaces

Provide a sack rubbed finish as specified in 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 according 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

Before 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, before staining. Submit color samples to the department before 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 according 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-40-792	SF
517.1015.S.0002	Concrete Staining Multi-Color B-40-793	SF
517.1015.S.0003	Concrete Staining Multi-Color B-40-794	SF
517.1015.S.0004	Concrete Staining Multi-Color B-40-875	SF
517.1015.S.0005	Concrete Staining Multi-Color B-40-876	SF
517.1015.S.0006	Concrete Staining Multi-Color B-40-877	SF
517.1015.S.0010	Concrete Staining Multi-Color R-40-561	SF
517.1015.S.0011	Concrete Staining Multi-Color R-40-564	SF
517.1015.S.0013	Concrete Staining Multi-Color R-40-568	SF
517.1015.S.0014	Concrete Staining Multi-Color R-40-569	SF
517.1015.S.0015	Concrete Staining Multi-Color R-40-570	SF
517.1015.S.0016	Concrete Staining Multi-Color R-40-572	SF
517.1015.S.0017	Concrete Staining Multi-Color R-40-632	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.

stp-517-115 (20140630)

112. Architectural Surface Treatment B-40-792, Item 517.1050.S.0001; Architectural Surface Treatment B-40-793, Item 517.1050.S.0002; Architectural Surface Treatment B-40-794, Item 517.1050.S.0003; Architectural Surface Treatment B-40-875, Item 517.1050.S.0004; Architectural Surface Treatment B-40-876, Item 517.1050.S.0005; Architectural Surface Treatment B-40-877, Item 517.1050.S.0006; Architectural Surface Treatment B-40-878, Item 517.1050.S.0007; Architectural Surface Treatment R-40-561, Item 517.1050.S.0016; Architectural Surface Treatment R-40-564, Item 517.1050.S.0017; Architectural Surface Treatment R-40-567, Item 517.1050.S.0018; Architectural Surface Treatment R-40-568, Item 517.1050.S.0019; Architectural Surface Treatment R-40-569, Item 517.1050.S.0020; Architectural Surface Treatment R-40-570, Item 517.1050.S.0021; Architectural Surface Treatment R-40-572, Item 517.1050.S.0022; Architectural Surface Treatment R-40-573, Item 517.1050.S.0023; Architectural Surface Treatment R-40-576, Item 517.1050.S.0024; Architectural Surface Treatment R-40-622, Item 517.1050.S.0025; Architectural Surface Treatment R-40-632, Item 517.1050.S.0026; Architectural Surface Treatment R-40-635, Item 517.1050.S.0027.

A Description

This special provision describes providing a concrete masonry architectural surface treatment on the exposed concrete surfaces of structures as the plan details show.

B Materials

Use form liners that attach easily to the forming system, and do not compress more than 1/4 inch when poured at a rate of 10 vertical feet/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 3/4 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 before 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 1/4 inch from each other, attach liner securely to forms according 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 measure Architectural Surface Treatment (Structure) in area by the square foot of architectural 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
517.1050.S.0001	Architectural Surface Treatment B-40-792	SF
517.1050.S.0002	Architectural Surface Treatment B-40-793	SF
517.1050.S.0003	Architectural Surface Treatment B-40-794	SF
517.1050.S.0004	Architectural Surface Treatment B-40-875	SF
517.1050.S.0005	Architectural Surface Treatment B-40-876	SF
517.1050.S.0006	Architectural Surface Treatment B-40-877	SF
517.1050.S.0007	Architectural Surface Treatment B-40-878	SF
517.1050.S.0016	Architectural Surface Treatment R-40-561	SF
517.1050.S.0017	Architectural Surface Treatment R-40-564	SF
517.1050.S.0018	Architectural Surface Treatment R-40-567	SF
517.1050.S.0019	Architectural Surface Treatment R-40-568	SF
517.1050.S.0020	Architectural Surface Treatment R-40-569	SF
517.1050.S.0021	Architectural Surface Treatment R-40-570	SF
517.1050.S.0022	Architectural Surface Treatment R-40-572	SF
517.1050.S.0023	Architectural Surface Treatment R-40-573	SF
517.1050.S.0024	Architectural Surface Treatment R-40-576	SF
517.1050.S.0025	Architectural Surface Treatment R-40-622	SF
517.1050.S.0026	Architectural Surface Treatment R-40-632	SF
517.1050.S.0027	Architectural Surface Treatment R-40-635	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.

stp-517-150 (20110615)

113. 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 Capacity

(1) Drive piles to the depths necessary to obtain the required driving capacity per the driving capacity determination method called for in the plans.

(2) Driving capacity will be developed by the engineer, or UPRR engineer if applicable, 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, or UPRR engineer if applicable.

(3) 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, or UPRR engineer if applicable, per the Pile Dynamic Analyzer (PDA) Testing and Restrike Special Provision within this contract.

For the PDA driving capacity determination method, pile restrikes will be required per the PDA Testing and Restrike Special Provision, or as directed by the engineer, or UPRR engineer if applicable. Accommodate a time delay in the pile driving sequence as defined in the PDA Testing Special Provision to allow the engineer, or UPRR engineer if applicable, time to develop the production pile driving criteria.

(4) If the required driving capacity is not met at the minimum tip elevation, driving shall continue until it is achieved. If the required driving capacity is achieved above the minimum tip elevation, driving shall continue until both the minimum tip elevation and required driving capacity criteria are met. If practical pile refusal is encountered prior to the minimum tip elevation, the engineer, or UPRR engineer if applicable, will determine if driving can be halted.

Where indicated in the structure plans, delete standard spec. 550.3.7.

114. Noise Barriers Double-Sided Sound Absorptive N-40-82, Item 531.0300.S.0001; Noise Barriers Double-Sided Sound Absorptive N-40-83, Item 531.0300.S.0002; Noise Barriers Double-Sided Sound Absorptive N-40-84, Item 531.0300.S.0003; Noise Barriers Double-Sided Sound Absorptive N-40-85, Item 531.0300.S.0004; Noise Barriers Double-Sided Sound Absorptive N-40-86, Item 531.0300.S.0005; Noise Barriers Double-Sided Sound Absorptive N-40-87, Item 531.0300.S.0006.

A Description

This special provision describes designing, fabricating, transporting, and erecting composite concrete double-sided sound absorptive noise barriers as the plans show and conforming to department-approved installation specifications.

B Noise Wall System

B.1 System Pre-Qualification and Selection

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 online at:

https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/default.aspx

Systems eligible for use on this project shall be pre-qualified before the award of this contract.

Provide the name of the selected system, and the intended fabricator 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 before beginning design of the noise barrier. A representative of the fabricator of the noise barrier components shall attend this meeting.

B.2 Design

B.2.1 Structural and Foundation Design

The structural and foundation design of the noise barrier system shall conform to the current edition of "AASHTO LRFD Bridge Design Specifications" published by the American Association of State Highway and Transportation Officials (AASHTO), 444 North Capitol Street, NW, Suite 225, Washington, DC 20001, with the following exceptions:

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.

Design drilled shaft foundations using the Broms Method. Ignore the top 1 foot of supporting soil in the design of ground-mounted barrier foundations.

In addition to wind loads, design the bottom noise barrier panel to support the dead load (weight) of the panels directly above it and its own dead load. Assume this dead load to be distributed uniformly across the bottom panel acting as a simple beam supported at the posts.

Bottom noise barrier panels shall have a minimum amount of perimeter reinforcement of a #4 bar which shall be continuous around the corners. Reinforcing steel in the concrete core of noise barrier panels shall have a minimum clear cover of 1 inch. Clear cover does not include sound absorptive material. Design the reinforced concrete core to resist the loads without considering any composite action from other material in the panel.

Provide a neoprene bearing pad or equivalent material of 1/4 inch minimum thickness between the foundation and the bottom panels. The allowable bearing stress shall not exceed 900 psi. Precast

concrete pedestals placed between the foundation and bottom panels shall be reinforced if over 1’-0" high. 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.

B.2.2 Fire Hose Access Openings

Design fire hose access openings, at locations the plans show, with additional reinforcement and clear cover 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 the plans show or the engineer approves otherwise, design the top of the noise barrier to be horizontal and at or above the acoustic elevation line the plans show. The bottom elevation of the noise barrier shall be as the plans show. 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 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, as referenced in ASTM E90.

B.2.6 Noise Reduction Coefficient (NRC)

Design the noise barrier system so that the highway sides of the noise barrier panels have a minimum NRC of 0.80 and the residential sides have a minimum NRC of 0.70 as referenced in ASTM C423.

B.2.7 Design Coordination

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 the plans show. This includes proposed roadway lighting and ITS facilities.

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.

B.2.8 Weep Hole Openings

Design panels such that weep hole openings in noise wall to allow water to drain can be field installed per C.3 at locations the plans show.

B.2.9 Maintenance Doors

Design maintenance doors and door portals in noise walls, at locations the plans show, with additional reinforcement and clear cover around the opening as necessary to maintain structural integrity per B.2.1.

B.3 Materials

Required material certifications and testing are the responsibility of the contractor. All certifications and test reports shall carry the name and address of the fabrication facility where the specific material was produced.

B.3.1 Concrete Masonry

Provide grade A, A-2, A-FA, A-S, A-T, A-IS, A-IP, or A-IT concrete conforming to standard spec 501 as modified in standard spec 716 for concrete posts and the core component of composite concrete sound absorbing panels. Provide QMP for class II ancillary concrete as specified in standard spec 716.

B.3.2 Materials Testing General

All test reports shall carry the name and address of the laboratory where testing was performed, and the name of the person in responsible charge of the specific tests for which data is presented. Materials tested shall be representative of materials manufactured for this specific contract. Panels tested or from which samples will be taken will be selected and appropriately marked by the engineer either at the manufacturer's plant or from panels delivered to the project at the engineer's option.

Testing as detailed below is required for each lot of material not to exceed 100,000 SF of noise barrier produced. Conduct testing 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. Provide the shipping record of the samples to the laboratory within five days of sampling. Begin testing as soon as practicable after sampling.

Test all materials as fabricated, including any specified finishing.

B.3.2.1 Noise Reduction Coefficient (NRC)

Test noise barrier panels according to ASTM C423, and placed according to ASTM E795, mounting type A, to determine the noise reduction coefficient (NRC) of the material. Submit to the engineer an independent laboratory test report that shows that the noise barrier panels achieve an NRC as specified in B.2.6 for the highway side of the barrier.

B.3.2.2 Long-term Durability

Test all sound absorbing composite concrete and composite concrete components for long-term durability according to ASTM C672 and the following modifications and/or requirements:

B.3.2.2.1 Test Specimens

Three specimens of a full cross section of the composite panel at least 144 square inches in face area will be selected at random from the provided composite panel as defined in B.3. Sample specimens shall be representative of the manufacturer's continuous production operation, as selected and marked by the engineer. Specimens shall be 2D-symmetric and shaped according to the testing laboratory's accommodations.

Prepare the surfaces of the sample specimens for testing as follows. Brush the surfaces of the sample to remove any loose particles. Before testing, submerge the test specimens be submerged in water for a period of 24 hours before testing. Immediately following this, cover the specimens with the sodium chloride solution as stated below.

B.3.2.2.2 Test Procedure

Place samples in a 5 sided water tight container, fully submerged in a solution of sodium chloride (concentration 3% by mass). Maintain 1/4 inch of sodium chloride solution above the top surface of the fully submerged specimen within the container.

Subject the submerged specimens to continuous freeze-thaw cycles as follows:

After each five cycles, remove the salt solution and particles of deteriorated concrete from the slab and collect 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. Continue this washing until all loose particles are removed from the sample. Strain the solution through a filter and dry the residue at 221 degrees Fahrenheit to a constant mass condition. Cumulatively weigh the residue after each five cycles. The dry residue is defined as the loss of mass. Calculate the loss of mass to the nearest 0.01 pounds per square foot, not including the exposed surface of any core material on the cast or cut edges. Visually rate the surfaces according to 10.1.5 of ASTM C672 including any delamination of the sound absorbing material from the concrete core for composite concrete materials. After each washing of each sample, re-establish the initial submerged condition with a new solution of 3% sodium chloride before continuing with freeze-thaw cycling.

Continue the test until 30 freeze-thaw cycles have been completed.

During the test position and support each specimen to allow free circulation of the test solution under, around, and over test pieces. Support the bottom of the specimens on blocks in a manner to facilitate movement of moisture through and around the test specimens.

B.3.2.2.3 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:

1. After 30 freeze-thaw cycles the test specimens shall not exhibit excessive deterioration in the form of cracks, spalls, aggregate disintegration, delamination or other objectionable features.
2. 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 30 cycles of freezing and thawing.
3. The report shall include the following:
    - 3.1. Name of manufacturer.
    - 3.2. Location of production.
    - 3.3. Production description.
    - 3.4. Date product sample was cast.
    - 3.5. Date testing began.
    - 3.6. Specimen identification.
    - 3.7. 5x7-inch color photographs of the test specimens before and after the 30 cycles of freeze-thaw test showing both sound absorbing faces and at least one representative side view of a cut (not cast) face, and any defects.
    - 3.8. A graph of the cumulative mass loss of each specimen plotted against the number of freeze-thaw cycles for 5, 10, 15, 20, 25, and 30 freeze-thaw cycles.
    - 3.9. Visual rating according to ASTM C672 Section 10.1.5, including report of any delamination of the sound absorbing material from the concrete core for composite concrete components.

B.3.3 Materials Certification - General

Provide certification of compliance or sample fabrications as noted below. All material certifications shall reference the specific facility manufacturing the material and this contract. Certification is required for each lot of material not to exceed 100,000 SF of noise barrier produced and shall include dates of fabrication for the lot being certified. 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.

B.3.3.1 Color and Surface Texture

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 before 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.

Manufacture noise barrier posts of the same materials throughout the project. Shop apply coating and coloring of the post and panels.

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 colors and textures 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 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.3.3.2 Structural Steel

Submit to the engineer certification of compliance, including mill certifications and heat numbers, that structural steel conforms to the properties required on the plans and shop drawings, and is galvanized after fabrication by the hot-dip process according to ASTM A123. Galvanize all steel hardware and threaded fasteners, bolts, nuts, and washers according to ASTM A153.

Shop coat all steel galvanized surfaces exposed to view with a department-approved paint system. Clean galvanizing surfaces to be painted according to SSPC-SP1 to remove, chlorides, sulfates zinc salts, oil,

dirt, organic matter and other contaminants. Brush Blast clean the surfaces according to SSPC-SP7 to create a slight angular surface profile (1.0 – 1.5 mils suggested) for adhesion. Do not fracture the galvanized finish or remove any dry film thickness during these processes.

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.3.2. 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 Co. (847) 330-1250	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 Co. (314) 644-1000	Tie	Rustbond Penetrating Sealer FC	1	36
	Top	Carboline 133 LH	4	NA
Wasser Corp. (253) 850-2967	Tie	MC-Ferrox B 100	3.0 to 5.0	8
	Top	MC-Luster 100	2.0 to 4.0	NA

B.3.3.3 Sound Transmission Loss (TL)

Submit to the engineer certification of compliance that the sound transmission loss of the panel material, when tested according to ASTM Standard E90, achieves a transmission loss as specified in B.2.5.

B.3.3.4 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 according to ASTM Standard G155, G153, or G152 after 2400 hours of exposure on a cement based test specimens:

1. No checking when rated according to ASTM D660.
2. No cracking when rated according to ASTM D661.
3. No blistering when rated according to ASTM D714.
4. No difference in adhesion between the unexposed control sample and an exposed sample when tested according to ASTM D3359, Method A.
5. No chalking less than #7 rating when rated according to ASTM D4214.
6. No color change greater than 5 NBS units when measured according to ASTM D2244, using illuminant D65 and the 1964 10-degree standard observer.

B.3.3.5 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 according to ASTM B117 and comply with the following requirements:

1. No checking when rated according to ASTM D660.

2. No blistering when rated according to ASTM D714.
3. No loss of adhesion when tested according to ASTM D3359 with no evidence of corrosion along the edges of the samples or along the score lines, or both, or other defects.

B.4 Project Submittal Requirements

Furnish required submittals according to the following:

B.4.1 Pre-Construction Submittals

A minimum of 14 days before beginning any shop or field work, submit the following documents to the engineer conforming to standard spec 105.2 with electronic submittal to the fabrication library under standard spec 105.2.2.

1. Structural and foundation design calculations

   Design calculations shall be on 8 1/2 x 11-inch sheets, neatly bound with a title sheet listing the complete project identification number and sound barrier designation. Structural and foundation calculations shall be signed, sealed and dated by a professional engineer licensed in the State of Wisconsin.
2. Detailed design/shop drawings

   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 shall 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 shall be signed, sealed and dated by a professional engineer licensed in the State of Wisconsin.
3. Specifications regarding installation requirements and sequence of construction, including a detailed bill of materials.
4. Detailed color plan of the aesthetic treatments and finishes for the entire noise barrier.
5. Shipping, handling, and storage plan identifying methods or practices to limit post production damage.

Department review does not relieve the contractor from responsibility for errors or omissions on shop drawings.

B.4.2 Pre-Installation Submittals

Supply and deliver to the engineer the sample panel required under Section B.3.3.1 at least 14 calendar days before beginning production and/or installation of job materials. Acceptance of the sample panel will be by: Sean Race, (414) 750-2380. If the panel is not acceptable, a second panel shall be produced and submitted for acceptance. Sample panel to be representative of quality for precast panel work after acceptance. Deliver test panels to a location to be determined by the engineer, for comparison purposes during production of project panels.

B.4.3 Payment Submittals

Submit certifications and test data as required under B.3 for all materials, including trade name of the products along with the name and address of the manufacturers.

B.4.4 Submittal Review

The engineer's review and acceptance of the drawings, calculations, and related material, submitted by the contractor, is for compliance with design intent only, 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 will 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 materials before department acceptance of submittals is at the contractor's risk.

C Construction

C.1 General

Construct the noise barriers at the locations the plans show, according to the contract specifications and design drawings and/or as the engineer directs. Deliver all sound absorbing composite concrete components to the project site 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 10 day notice to the engineer of the date that the fabrication of the noise barrier material will begin.

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, before 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.

Erect noise barriers to avoid conflict with any existing facilities or utilities to remain in place. Any damage caused by construction activities shall be repaired by the contractor at no cost to the department.

C.2 Fire Hydrant Location Signs

Attach fire hydrant location signs to the noise barrier at each location the plans show by a method the department's approved drawings show. 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 Weep Hole Openings

Provide weep hole openings for drainage at the locations and sized as noted on the plan. Install weep holes by drilling through the wall after erection of the noise barrier. Use 6" PVC Schedule 40 pipe sleeve conforming to ASTM D-1785. Epoxy 6" PVC Schedule 40 pipe sleeve into bored weep hole. PVC pipe sleeve shall fit snugly in cored hole through wall. Epoxy PVC pipe sleeve into bored weep hole in noise barrier. Locate and construct weep holes according to the plans and as the engineer directs. Place weep holes at locations the plans show unless the engineer approves adjusting locations to fit field conditions. The engineer will field verify the height and location of the weep hole for positive drainage.

C.4 Name Plates

Provide name plates conforming to the requirements of standard spec 506.2.4. Install one name plate on each noise barrier at the location the plans show. 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.5 Structure Mounted Noise Barriers

Do not erect noise barriers mounted to bridge or retaining wall structures until after the concrete 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 the height of the noise barrier acoustical line the plans show before placement of earth fill or pavement over the top of the moment slab as the plans show. Erection of the noise barrier in excess of two-thirds its height to the full height of the noise barrier acoustical line the plans show may not occur until after the earth fill or pavement structure over the top of the moment slab the plans show is complete.

C.6 Construction Tolerances

Install the posts and panels comprising the noise barrier plumb within 1/2 inch in 15-feet. Locate the posts to the line and grades as the plans show to within +/- 3/4 inch. Align horizontal joints of adjacent panels to a vertical tolerance of 1/4 inch. Where vertical adjustments are required for alignment, use a mortar base or steel shims. Galvanize and prime coat steel shims according to B.3.3.2.

D Measurement

The department will measure Noise Barriers Double-Sided Sound Absorptive by the square foot, acceptably completed, 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-40-82	SF
531.0300.S.0002	Noise Barriers Double-Sided Sound Absorptive N-40-83	SF
531.0300.S.0003	Noise Barriers Double-Sided Sound Absorptive N-40-84	SF
531.0300.S.0004	Noise Barriers Double-Sided Sound Absorptive N-40-85	SF
531.0300.S.0005	Noise Barriers Double-Sided Sound Absorptive N-40-86	SF
531.0300.S.0006	Noise Barriers Double-Sided Sound Absorptive N-40-87	SF

Payment is full compensation for providing noise barrier including: coloring and aesthetic treatment on panels, preparing the design drawings and calculations, furnishing and delivering sample and test panels, materials testing, furnishing materials test reports and certifications, excavation, preparing the site, constructing foundations, erecting posts and panels, and disposing of waste materials.

stp-531-010 (20180628)

115. Concrete Barrier.

Add the following to standard spec 603.5.2(3):

The department will pay separately for associated work as follows:

- 42-Inch single slope concrete barrier end anchors, under Concrete Barrier Type S42 End Anchor, Item SPV.0060.0115.

116. Catch Basins, Manholes, and Inlets.

Provide Ductile Iron covers (lids) for Inlet Covers type V and Inlet Covers type 27-M conforming to ASTM A536 Grade 80-55-06. If ductile iron frames are not available, provide cast iron frames conforming to AASHTO M105 Class 30.

Supplement standard spec 611.3.1 with the following:

Precast reinforced concrete sections shall be constructed in horizontal courses. The units shall be laid in mortar or sealed with preformed flexible joint sealant or mastic joint sealer. When mastic joint sealer is used, the material shall completely fill the joint after the units have been brought together.

Handling holes may utilize an integral preformed metal insert. If the handling hole is open to both the internal and external wall of the structure, plug the handling hole with either a precast concrete plug mortared in place or with a combination of brick, mortar and/or mastic. The plug shall not project beyond the inside surface after installation. When integral preformed metal lifting inserts are used, their sockets shall be filled with mastic or mortar.

Provide and install manhole steps meeting the requirements of Section 3.5.4 (g) of the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition.

Inlet and outlet pipes shall extend through walls a sufficient distance to allow for connections on the outside and the collar concrete or mortar carefully placed around them to prevent leakage around their outlet surfaces. Unless otherwise shown, the inside ends shall be flush with the inside walls.

Provide and install either a pre-formed integral or poured-in place bench at the structure invert unless Plans identify a sump below the lowest pipe invert. The surface of the bench shall be free of loose material and smooth trowel finished to avoid surface projections impeding flow. Form the bench at the lowest pipe invert. Bench sides shall rise a minimum of half the diameter of the lowest pipe.

Use a mortar 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 Specifications 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 before 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 providing such materials, even though the shop drawings may have been reviewed and accepted by the engineer.

Fasten existing and proposed storm sewer structure covers subject to traffic loading according to Fastening 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 the plans show.

Supplement standard spec 611.3.3 with the following:

Use monolithic concrete shimming as the plans show 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.

All associated masonry work, including but not limited to adjustment ring installation, false bottoms, pipe connections, and other structural appurtenances shall be tuckpointed and back plastered with mortar conforming to standard spec 518.2 upon completion and as directed by the engineer. When tuckpointing and back plastering work is performed and completed at temperatures below 32-degrees F, keep the mortar moist at a temperature above 32-degrees F and provide protection from the elements to prevent freezing for a period of not less than 48 hours.

All catch basins, manholes, inlets, and similar structures newly constructed, adjusted or reconstructed under the contract, shall be cleaned of any accumulation of silt, debris, or foreign matter of any kind, and shall be free from such accumulations at the time of final acceptance.

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. *HDPE or rubber rings are not permitted.*

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, for mortar 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.

Fastening sewer access covers and removing performed joint sealant as the engineer directs are paid under separate bid items.

117. Adjusting Storm Sewer Structures.

Add the following text to standard spec 611.3.1:

Remove covers and frames prior to milling. Cover openings with a Cover Plates Temporary of sufficient thickness to carry traffic and at a depth to accommodate the milling operations. Backfill excavated areas with an asphalt surface mix to an elevation that will match the adjacent pavement. Cover Plates Temporary will paid as separate contract bid item.

Add the following text to standard spec 611.3.7:

The replacement of Grade A concrete when adjusting manhole covers in areas of bituminous resurfacing shall be to the top of the existing concrete base as shown on the detail for adjusting manhole covers. Use construction methods that conform to the requirements set forth in standard spec 611.3.3.

Add the following text to standard spec 611.5:

Removal and replacement of concrete pavement to accomplish the work shall be incidental to the cost of work. Removal and replacement of concrete curb and gutter will be paid for under items Removing Curb and Gutter and Concrete Curb and Gutter, 24-inch.

SER-611-001 (20161216)

118. Cover Plates Temporary, Item 611.8120.S.

A Description

This special provision describes providing and removing steel plates 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 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
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.

stp-611-006 (20151210)

119. Pipe Grates, Item 611.9800.S.

A Description

This special provision describes providing pipe grates on the ends of pipes.

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 according to the requirements of AASHTO M36M.

D Measurement

The department will measure Pipe Grates in units of work, where one unit is one grate, completed 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
611.9800.S	Pipe Grates	EACH

Payment is full compensation for furnishing and installing all materials; and for drilling and connecting grates to pipes.

stp-611-010 (20030820)

120. Crash Cushions Permanent Low Maintenance

Complete the work in accordance to standard spec 614, as shown in the plans, and as hereinafter provided

Furnish Smart Cushion manufactured by Hill & Smith model SCI100GM.

121. Fence Safety, Item 616.0700.S.

A Description

This special provision describes providing plastic fence at locations the plans show.

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
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.

stp-616-030 (20160607)

122. Soil Stabilizer Type B

Replace standard spec 628.3.12.3(1) with the following:

(1) Apply soil stabilizer with conventional hydraulic seeding equipment at the manufacturer's recommended rate unless the engineer directs otherwise.

123. Foundation Drilling 36-Inch Diameter UPRR.

A Description

This special provision describes drilling holes for the H pile posts for retaining walls.

B (Vacant)

C Construction

Refer to track shoring zones in the diagram indicated in the "Temporary Shoring Railroad" special provision. For all drill holes that penetrate Zone A as defined in the diagram, excavate those holes with a casing of sufficient thickness to support E80 loading for the diameter required. Excavate all other holes that do not penetrate Zone A with slurry.

Submit the proposed method for foundation drilling for each hole, for approval and acceptance to the UPRR engineer and the engineer, before beginning construction.

Drill holes to the diameter and depth the plans show. If bentonite or other slurry is used to maintain an open hole, prevent spillage of the slurry into adjacent waterways. Locate the holes within the following tolerances:

Horizontal Location	3 inches
Vertical Location	1 inch
Vertical Alignment	1/8 inch per foot

D Measurement

If used, Foundation Drilling 36-Inch Diameter UPRR 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 Temporary Shoring Railroad Type A in the contract documents and shall include all work required in this special provision.

124. 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 the plans show. 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 before placement of reinforcement and filling the excavation with concrete.

(4) 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.

Add the following to standard spec 636.3.3:

(8) For drilled foundations, no more than 3 inches of standing water is allowed in the bottom of the drilled excavation within a timeframe acceptable to the engineer before placing concrete masonry in the excavation.

Replace standard spec 636.5.2(1) with the following:

(1) 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 all required excavating; 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.

sef-636-005 (20170310)

125. Signs Type I and II.

Furnish and install 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.

Supplement 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 six 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, one-half 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 637.3.3.2(2) with the following:

(2) 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.

Supplement 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.

Add the following to standard spec 641.2:

Submit shop drawings for sign bridges and overhead sign supports to SE Region Traffic Operations Engineer, Tom Heydel and Bureau of Structures Design.

SER-637-001 (20170621)

126. No Trespassing Signs UPRR.

A Description

Work under this item consists of fabricating, delivering, and installing two UPRR No Trespassing signs at the locations that the plans show. Perform work in accordance to these special provisions, the plans, and standard spec 637. Refer to UPRR STD DWG 0538E inserted at the end of this special provision

B Materials

Use materials that conform to standard spec 637.2, except as modified by UPRR STD DWG 0538E.

C Construction

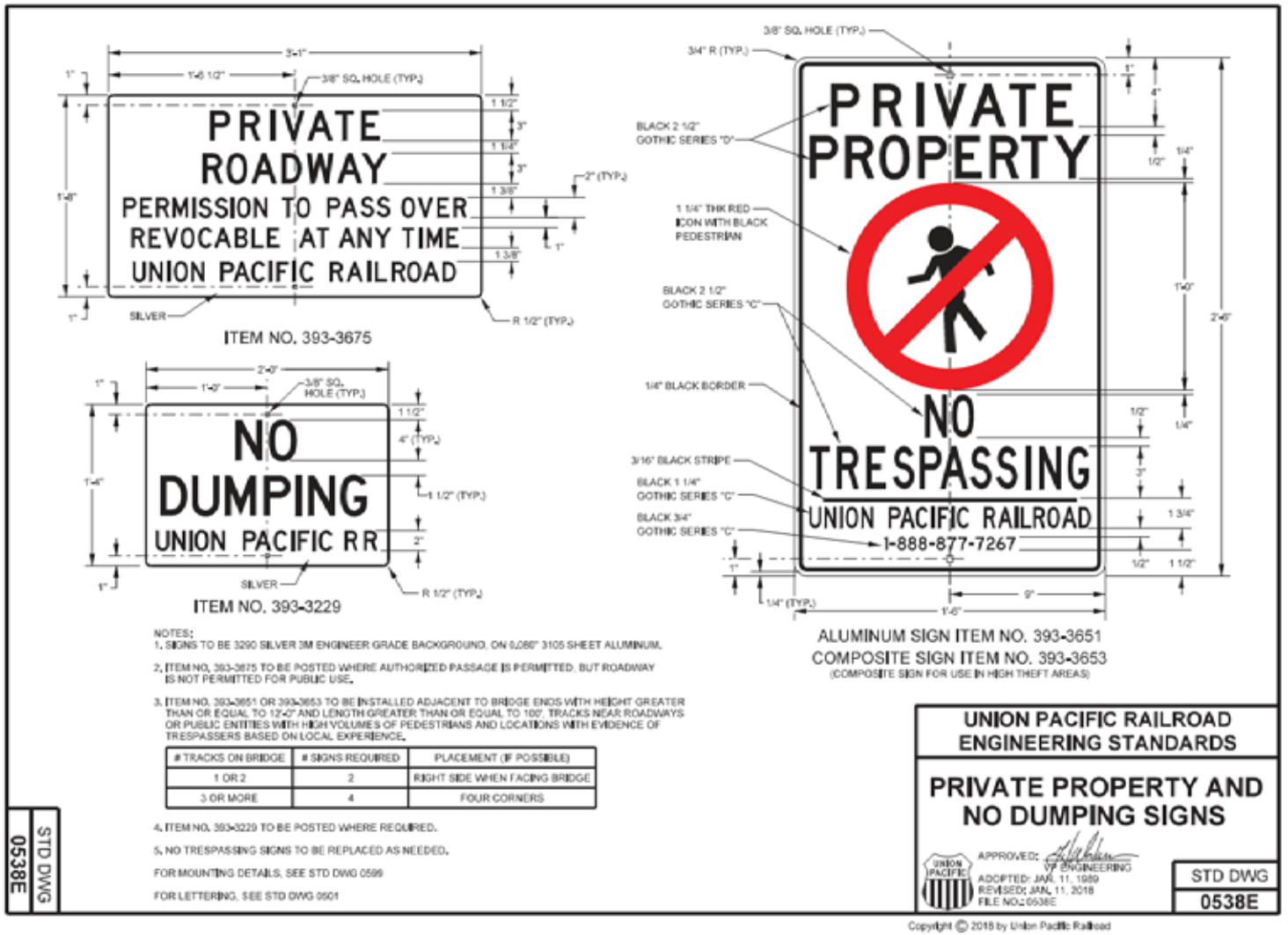
Deliver and install the signs at all locations that the plans show. Install according to standard spec 637.3.

D Measurement

No Trespassing Signs UPRR will not be measured separately for payment and will be considered included in the work for the item Concrete Masonry Bridges.

E Payment

Payment to the contractor utilizing this option is based on the contract unit bid price and plan quantity for the item Concrete Masonry Bridges in the contract documents and shall include all work required in this special provision.



NOTES:

1. SIGNS TO BE 3290 SILVER 3M ENGINEER GRADE BACKGROUND, ON 0.080" 3105 SHEET ALUMINUM.
2. ITEM NO. 393-3675 TO BE POSTED WHERE AUTHORIZED PASSAGE IS PERMITTED, BUT ROADWAY IS NOT PERMITTED FOR PUBLIC USE.
3. ITEM NO. 393-3651 OR 393-3653 TO BE INSTALLED ADJACENT TO BRIDGE ENDS WITH HEIGHT GREATER THAN OR EQUAL TO 12'-0" AND LENGTH GREATER THAN OR EQUAL TO 100'. TRACKS NEAR ROADWAYS OR PUBLIC ENTITIES WITH HIGH VOLUMES OF PEDESTRIANS AND LOCATIONS WITH EVIDENCE OF TRESPASSERS BASED ON LOCAL EXPERIENCE.

# TRACKS ON BRIDGE	# SIGNS REQUIRED	PLACEMENT (IF POSSIBLE)
1 OR 2	2	RIGHT SIDE WHEN FACING BRIDGE
3 OR MORE	4	FOUR CORNERS

4. ITEM NO. 393-3229 TO BE POSTED WHERE REQUIRED.
5. NO TRESPASSING SIGNS TO BE REPLACED AS NEEDED.

FOR MOUNTING DETAILS, SEE STD DWG 0599

FOR LETTERING, SEE STD DWG 0501

STD DWG 0538E

UNION PACIFIC RAILROAD ENGINEERING STANDARDS

PRIVATE PROPERTY AND NO DUMPING SIGNS

APPROVED: VP ENGINEERING
ADOPTED: JAN. 11, 1989
REVISED: JAN. 11, 2018
FILE NO.: 0538E

STD DWG 0538E

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127. Covering Signs.

Replace standard spec 643.2.3.3(2) with the following:

(2) Ensure that covers are flat black, blank, and opaque.

Add the following to standard spec 643.3.4.1 as paragraph four:

(4) If multiple messages on a single sign are required to be covered, minimize the number of holes created by covering the sign with a single rectangular shaped covering. Multiple coverings on a single sign is only permissible where necessary to avoid covering necessary content or as directed by the engineer. Submit sign covering plans to the engineer for single signs requiring multiple coverings 3 days before performing work. Obtain engineer approval before covering signs. Remove sign coverings before placing fixed messages signs unless otherwise directed by the engineer.

sef-643-005 (20180104)

128. Traffic Control.

Supplement standard spec 643.3.1 with the following:

Provide the Milwaukee County Sheriff's Department, the Wisconsin State Patrol, Wauwatosa Police Department 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 safety hazard develops.

Do not park or store equipment, contractor’s and personal vehicles or construction materials within the clear zone or on any roadway carrying traffic during working and non-working hours except at locations and periods of time approved by the engineer.

Do not permit construction or personnel equipment or vehicles to directly cross the live traffic lanes of the freeway. Yield to all through traffic at all locations. Equip all vehicles or equipment operating in the 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, except when parked behind barrier wall. Do not park personal vehicles within the access control limits of the freeway. Do not cross live traffic lanes of the freeway with equipment or vehicles.

Obtain prior approval from the engineer for the locations of egress or ingress for construction vehicles to prosecute the work.

Do not disturb, remove or obliterate any traffic control signs, advisory signs, sand barrel array, shoulder delineators or beam guard in place along the traveled roadways without the approval of the engineer.

Ensure that Flagging operations conform to standard spec 104.6.1.(4) and chapter 6E of the WMUTCD.

Replace standard spec 643.3.1.(7) with the following:

Provide equipment, forces, and materials to promptly restore any traffic control devices or pavement markings damaged or disturbed within 2 hours of being contacted.

SER-643-001 (20170808)

129. Work Zone Ingress - Egress.

Any initial set-up and/or changes to the Work Zone Ingress – Egress construction detail in the plan or location(s) should be submitted a minimum of 10 working days before use and are subject to approval by the engineer and the Southeast Region Work Zone Engineer.

ser-643-005 (20180131)

130. Nighttime Work Lighting-Stationary.

A Description

This special provision describes furnishing 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 before 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.

stp-643-010 (20100709)

131. Dynamic Late Merge System, Item 643.1100.S.

A Description

This special provision describes providing, repositioning, operating, maintaining, monitoring, calibrating, testing and removing a dynamic late merge system (DLMS) capable of measuring vehicular speeds at downstream sections of the roadway and activating the system.

B Materials

Provide DLMS components and software that is National Transportation Communications for ITS Protocol (NCTIP) compliant.

B.1 Portable Changeable Message Signs (PCMS)

Provide PCMS conforming to standard spec 643. Ensure each PCMS is integrated with a portable traffic sensor, modem, and other equipment (e.g., automated system manager) mounted on it, and acts as a single device for communicating with similarly integrated devices and displaying real-time traffic conditions.

B.2 Portable Traffic Sensors (PTS)

Provide PTS that are nonintrusive and capable of capturing vehicle speed in mph and traffic volume. Integrate each sensor with a modem to communicate with the automated system manager (ASM).

B.3 Static Traffic Control Signs with Temporary Flashing Beacons

Provide static traffic control signs with temporary flashing beacon signs conforming to standard spec 658.2(2) for Traffic Signal Faces. Ensure each FBS is integrated with a PTS, modem, and other equipment (e.g., automated system manager) mounted on it, and acts as a single device for communicating with similarly integrated devices and displaying real-time traffic conditions.

B.4 Automated System Manager (ASM)

Provide an ASM that assesses current traffic data captured by the PTS, determines the appropriate merging strategy based upon predetermined speed thresholds, and communicates appropriate messages to the motorists through the PCMS and FBS.

B.5 System Communications

Ensure DLMS communications meet the following requirements:

1. Perform required configuration of the DLMS communication system automatically during system initialization.
2. Communication between the server and any individual PCMS or PTS are independent through the full range of deployed locations, and do not rely upon communications with any other PCMS or PTS.
3. Incorporate an error detection/correction mechanism into the DLMS communication system to ensure the integrity of all traffic condition data and motorist information messages.

B.6 System Acceptance

Submit vendor verification to the engineer and Bureau of Traffic Operations (DOTWorkzone@dot.wi.gov) 14 calendar days before the pre-construction meeting that the system will adequately perform the functions specified in this special provision. Adequate verification includes past successful performance of the system, literature and references from successful use of the system by other agencies, and/or demonstration of the system.

Provide contact information for a designated representative responsible for monitoring the performance of the system and for making modifications to the operational settings as the engineer directs.

Provide all testing and calibration equipment.

C Construction

C.1 General

Install and reposition DLMS per plan and quantities or as the engineer directs. Place additional PTS near the lane closure taper and 0.5 miles upstream of lane closure taper. Provide plan to the engineer and Bureau of Traffic Operations (DOTWorkzone@dot.wi.gov) 14 calendar days before the pre-construction meeting.

Number the devices in chronological order so they are visible from the shoulder with 6-inch white high reflective sheeting.

Provide technical personnel for all system calibration, operation, maintenance, and timely on-call support services.

Promptly correct the system within 24 hours of becoming aware of a deficiency in the operation or individual part of the system. A minimum of three days before deployment, place the DLMS and demonstrate to the department that the DLMS is operational.

Maintain the DLMS for the duration of the project or as identified in the plans. Ensure the system operates continuously (24 hours, 7 days a week) in the automated mode throughout the duration of the project.

Remove the system upon project completion.

C.2 Reports

Provide an electronic copy of a weekly summary report via email to the engineer. Ensure the report includes, at a minimum, the average speed per sensor, traffic volume, time in congestive state per sensor and number of triggers per day.

C.3 Meetings

Attend mandatory in-person pre-construction meetings with the department. Attend additional meetings as deemed necessary by the department. These meetings may be held in person or via teleconference, as scheduled by the department.

C.4 Programming

C.4.1 General

Program the DLMS to ensure that the following general operations are performed:

1. Provide a password protected login to the ASM, website and all other databases.
2. The DLMS operates as a unit where the FBS and the PCMS activate at the same time for the same scenario. System operation may be based on as few as one PTS.
3. The ASM ensures that messages sent to the connected PCMS and FBS are synchronized so that all the messages on all the PCMS are for the same traffic conditions.
4. Provide real-time data from the ASM to a website with a full color mapping feature and refresh every 60 seconds. Make data on website available to the department at all times for the duration of the work zone activity. Ensure website includes at a minimum:
    - Vehicle speeds
    - PCMS messaging
    - Device locations
    - Traffic volume
5. Archive all traffic data and PCMS messages in a Microsoft Excel format with date and time stamps.
6. Configure the website to quantify system failures, which includes communication disruption between any devices in the system configuration, PCMS malfunctioning, PTS malfunction, loss of power, low battery, etc.
7. Provide default and advisory messages automatically based on traffic conditions.
8. Ensure the system autonomously restarts in case of any power failure.
9. Provide the department access to manually override PCMS messages for a user-specified duration, after which automatic operation will resume display of messages appropriate to the prevailing traffic conditions. Document all override messages.

C.4.2 System Operation Strategy

Arrange for the vendor/manufacturer to coordinate system operation, detection, trends/thresholds, and messaging parameters with the engineer.

The sequences that are a minimum requirement, but can be adjusted at the discretion of the engineer, are as follows:

Free Flow:

If the current PTS-measured speed near the lane closure tape is at or above 40 mph, display no lane use messages, and therefore allow traffic to resume typical early merge operation.

Congestion:

If the current PTS-measured speed near the lane closure tape is at or below 39 mph, the following two-phase messages shall be displayed on the upstream PMCS as shown below:

- Point of merge:

FRAME 1	FRAME 2
MERGE HERE	TAKE TURNS

- Intermediate PCMS:

FRAME 1	FRAME 2
DO NOT MERGE	USE ALL LANES

- PCMS located beyond estimated maximum queue length for traffic from the South/East/West:

FRAME 1	FRAME 2
IH 41 NORTHBND	BACKUPS AHEAD

- PCMS located beyond estimated maximum queue length for traffic from the NORTH:

FRAME 1	FRAME 2
IH 41 SOUTHBND	BACKUPS AHEAD

C.5 Calibration and Testing

At the beginning of the project and monthly throughout the duration of the project, perform a successful field test and calibration at the DLMS location to verify the system is detecting accurate vehicle speeds and volumes, and accurately relaying the information to the ASM, PCMS and FBS.

Send email of successful calibration and testing to the engineer.

D Measurement

The department will measure Dynamic Late Merge System by the day, acceptably completed, measured as each complete system per roadway.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
643.1100.S	Dynamic Late Merge System	DAY

Payment is full compensation for providing, repositioning, operating, maintaining, monitoring, calibrating, testing, and removing the complete system consisting of PCMS, FBS, PTS, ASM, and system communications.

Failure to correct a deficiency to the PCMS, FBS, PTS, or ASM within 24 hours after notification from the engineer or the department will result in a one-day deduction of the measured quantity for each day in which the deficiency is not corrected.

Failure to correct the website within 24 hours after notification from the engineer will result in a 10% reduction of the day quantity for each day the website is down.

The engineer will have sole discretion to assess the deductions for an improperly working DLMS.

stp-643-040 (20191121)

132. Traffic Control Interim Lane Closure, Item 643.4100.S.

A Description

This special provision describes closing a freeway/expressway traffic lane.

B (Vacant)

C Construction

Install and reposition traffic control devices as required to close a traffic lane. Remove and return the devices to their previous configuration when the closure is no longer required.

D Measurement

The department will measure Traffic Control Interim Lane Closure as each individual reposition/return cycle, acceptably completed. The department will not measure additional moves or configuration changes as might be required solely to accommodate the contractor's operations.

The department will measure the closures by traffic lane and roadway. The department will not measure multiple closures in the same traffic lane on a project.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
643.4100.S	Traffic Control Interim Lane Closure	EACH

Payment is full compensation for closing and re-opening the affected traffic lane.

stp-643-030 (20170615)

133. Temporary Pavement Marking

Add the following to standard spec 649.3:

(1) On pavements not scheduled for removal under this project, remove markings using air blasting, water blasting, or a combination of thereof. Do not use grinding on these pavements.

134. Marking Replace Line Wet Reflective Epoxy 4-inch, Item 646.1041.S;

A Description

This special provision describes applying wet reflective epoxy marking over existing grooved pavement marking conforming to standard spec 646, as the plans show, and as follows.

B Materials

Furnish wet reflective epoxy pavement marking materials conforming to standard spec 646.2.

C Construction

Remove loose marking. Clean and prepare the surface of the existing marking and the groove to accept the new wet reflective epoxy marking.

Apply wet reflective epoxy marking conforming to standard spec 646.3 and as follows:

If black contrast marking lines are present, ensure the black contrast marking lines are not covered by the white wet reflective epoxy.

Repair or replace new marking that was improperly applied or that fails during the proving period as specified in standard spec 646.3.1.5.

D Measurement

The department will measure the Marking Replace Line Wet Reflective Epoxy bid items by the linear foot of 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
646.1041.S	Marking Replace Line Wet Reflective Epoxy 4-Inch	LF

Payment is full compensation for providing the marking, including remarking as required under standard spec 646.3.1.2(2).

stp-646-015 (20180628)

135. Marking Replace Line Contrast Wet Reflective Epoxy 4-inch, Item 646.1546.S; Marking Replace Line Contrast Wet Reflective Epoxy 8-inch, Item 646.3546.S.

A Description

This special provision describes applying contrast wet reflective epoxy marking over existing grooved pavement marking conforming to standard spec 646, as the plans show, and as follows.

B Materials

Furnish contrast wet reflective epoxy pavement marking materials conforming to standard spec 646.2.

C Construction

Remove loose marking. Clean and prepare the surface of the existing marking and the groove to accept the new contrast wet reflective epoxy marking.

Apply contrast wet reflective epoxy marking conforming to standard spec 646.3 and as follows:

- For 4-inch: apply two 1 1/2-inch wide black epoxy lines with a 4-inch separation between the two black lines for the first pass, followed by a 4-inch wide white epoxy line second pass, for a total width of 7 inches.
- For 8-inch: apply two 1 1/2-inch wide black epoxy lines with an 8-inch separation between the two black lines for the first pass, followed by an 8-inch wide white epoxy line second pass, for a total width of 11 inches.

Repair or replace new marking that was improperly applied or that fails during the proving period as specified in standard spec 646.3.1.5.

D Measurement

The department will measure the Marking Replace Line Contrast Wet Reflective Epoxy bid items by the linear foot of line, 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
646.1546.S	Marking Replace Line Contrast Wet Reflective Epoxy 4-Inch	LF
646.3546.S	Marking Replace Line Contrast Wet Reflective Epoxy 8-Inch	LF

Payment is full compensation for providing the marking, including remarking as required under standard spec 646.3.1.2(2).

stp-646-020 (20180628)

136. General Requirements for Electrical Work.

Replace standard spec 651.3.3(3) with the following:

(2) Request a signal inspection of the completed signal installation to the engineer at least five working days prior to the time of the requested inspection. Notify the department's Electrical Field Unit at (414) 266-1170 to coordinate the inspection. The department's Region Electrical personnel will perform the inspection. In the event of deficiencies, request a re-inspection when the work is corrected. The engineer will not authorize continuation of aboveground work or turn-on until the contractor corrects all deficiencies.

137. Electrical Conduit.

Replace standard spec 652.5(2) with the following:

(2) Payment for Conduit Rigid Metallic, Conduit Rigid Nonmetallic, Conduit Reinforced Thermosetting Resin, and Conduit Special bid items 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 making necessary connections into existing pull box, manhole, junction box or communication vault; for excavating, bedding, and backfilling, including any sand, concrete, or other required materials; for disposing of surplus materials; and for making inspections.

Replace standard spec 652.5(5) with the following:

(5) Payment for Conduit Loop Detector is full compensation for providing all materials, including conduit, compacted backfill, surface sealer if required, pull wire if required, condulets, conduit fittings, and for making necessary connections into existing pull box, manhole, junction box or communication vault.

138. 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 condunit, as provided and paid for under other items in this contract. Furnish backfill material, topsoil, fertilizer, seed, and mulch conforming to the standard spec.

C Construction

Expose the outside of the existing structure without disturbing existing conduits or cabling. Drill the appropriate sized hole for entering conduits 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.

stp-652-070 (20100709)

139. Electrical Service Meter Breaker Pedestal IH 41 SB On Ramp & W North Ave, Item 656.0200.3001; Electrical Service Meter Breaker Pedestal IH 41 NB On Ramp & W North Ave, Item 656.0200.3002; Electrical Service Meter Breaker Pedestal W North Ave & N 116th St, Item 656.0200.3101.

Append standard spec 656.2.3 with the following:

(2) The department will be responsible for the electrical service installation request for any department maintained facility. Notify the maintaining authority if the signal is not state maintained that it is their responsibility to arrange for the electrical service installation.

(3) Electrical utility company service installation and energy cost will be billed to and paid for by the maintaining authority.

(4) Install the cabinet base and meter breaker pedestal first, so the electrical utility company can install the service lateral. Install a 3” conduit from the point of service from the utility to the meter breaker pedestal. Finish grade the service trench, replace topsoil that is lost or contaminated with other materials, fertilize, seed, and mulch all areas that are disturbed by the electrical utility company.

Append standard spec 656.5 with the following:

(8) Payment is full compensation for grading the service trench; replacing topsoil; and for fertilizing, seeding, and mulching to restore the disturbed area of the service trench.

140. Traffic Signal Faces.

Append standard spec 658.3 with the following:

(5) Connect all ungrounded conductors with wire nuts in the appropriate sections of the signal heads. Connect the neutral conductors to the terminal strip. Be certain to twist wires prior to installing the wire nuts. All wire nuts must be installed facing up to prevent the entrance of water.

141. Pedestrian Push Buttons.

Replace standard spec 658.2(5) with the following:

(5) Furnish freeze-proof ADA compliant pedestrian push buttons made by a department-approved manufacturer. Place a Size 1, Type H reflective (R10-3EL, R, D) sign sticker (per state sign plate), message series – B directly above each push button. Include a directional arrow or arrows on the sign as the plans show.

142. Lighting Systems

A General

Add the following to standard spec 651, 652, 653, 654, 655, 656, 657 and 659.

All the work necessary to comply with revisions to standards specifications mentioned herewith shall be incidental to associated pay items or to the project including coordination, materials, and labor. No additional payment shall be made to the contractor.

Add the following to standard spec 651.2:

Materials indicated to be returned to the department shall be hauled to one of the following two locations:

1. State Electrical Shop at 935 South 60th street, West Allis, as directed by Miss. Bree Johns-Konkol, tel. (414) 266-1170.
2. Milwaukee County Grounds, 10191 West Watertown Plank Road, Wauwatosa, as directed by Mr. Pat Stoetzel, tel. (414) 750-5306.

Arrange pickups and deliveries 3 days in advance and during regular business hours (Monday – Thursday 7:00 AM to 3:45 PM).

Add the following to standard spec 651.3.1:

Any circuit that the contractor does not personally tag out at the disconnect shall be considered live and will be subject to being activated by another person with no notice to the contractor. Make tagouts with manufactured tags and endorse them with the date and the name of the contractor. Clear tagouts at the end of the workday. The department does not employ a load dispatcher and has no intent to do so. Each electrical worker is responsible for their own protection from automatic switching and from switching by others.

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.

Add the following to standard spec 651.5:

Work to disconnect and connect conductors shall 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 freeway lighting pay items included in this contract. The department will not measure conductors or conduits that have been abandoned in place or removed for scrap. The department will allow, at the contractor’s discretion, for the salvaging of conductors to be abandoned, if possible.

Add the following to standard spec 652.3.1.4:

Support conductors at the top of the vertical raceway or as close as practical if the vertical rise exceeds 40-feet. Provide additional supports as shown; in no case shall the distance between supports exceed that shown in Table 300.19(A) of the Wisconsin State Electric Code.

Add the following to standard spec 655.3.1:

Wet location splices are not anticipated on this project and not shown in the plans. In the event that the engineer allows wet location splices, make pull box splices with engineer approved epoxy kit.

At each pull point or access point, indicate the line side bundle with a lap of blue tape.

Add the following to standard spec 653.3(1):

This provision modifies the standard detail drawing for pull boxes and thereby both the standard items and SPV pay item for pull boxes. Lighting pull box covers shall read “LIGHTING”.

Add the following to standard spec 655.3.7(4):

Where two or more wire networks pass through a pull point, tag each circuit network (i.e. A/B/N and C/D/N) with approved all-weather tags.

Add the following to standard spec 657.2:

Non-breakaway poles (mounted on structures, concrete bases or behind noise wall barriers without transformer base), as well as at stems of sign bridges containing electrical wires are to be double nutted and contractor shall install galvanized rat screen enclosing the bottom of pole area; extra nuts and screen incidental.

Add the following to standard spec 657.3.1and 657.3.5:

Corrosion protection measures described in standard spec 657.3.1 and 657.3.5 are invoked for breakaway transformer bases and aluminum light poles. The contractor shall avoid contact of dissimilar metals in erecting the pole on its foundation and/or breakaway device. Any concern of trapped moisture or potential corrosion cell shall be resolved to the satisfaction of the engineer.

Manufacturer’s Warranty for LED luminaires: The manufacturer shall warrant to the department that each complete luminaire (consisting of the housing, optical assembly, LED drivers, surge protection and wiring) will be free from defects in material and workmanship for 5 years from the date that the luminaire are put into service. Luminaires shall be installed within one year of manufacture.

If any luminaires fail to meet the above warranty, the department shall provide the manufacturer with a written notice of any defect within 30 days after discovery of the defect. The manufacturer shall provide all materials, luminaires, replacement component parts, labor and all incidentals necessary to restore the luminaire to a fully operational, installed condition.

Submittal Requirements for LED luminaires: Considering the rapid advancement in LED technology, the overall project construction and duration of construction, within 10 calendar days after contract execution, the contractor is responsible to coordinate the lead time for LED luminaires purchase and installation schedule for LED luminaires with the engineer and the department’s lighting engineer, Eric Perea, at eric.perea@dot.wi.gov or at (262) 574-5422 prior to order LED luminaires. The LED luminaires purchasing may be done during later stage of construction as directed by the department which shall not delay the construction.

Add the following to standard spec 659.3:

Provide and install / replace Plaques Light Pole on all poles located in the median at a mounting height of 6-inch above the highest adjacent safety barrier or obstruction.

Add the following to standard spec 659.3.1:

Provide adequate temporary roadway lighting during all the construction stages not shown on the temporary lighting plans, but which are necessitated by field conditions or by any construction phasing changes. Installation of temporary lighting not shown on temporary lighting plans shall be paid according to appropriate pay items included in this contract. Submit a redline markup plans for any additional temporary lighting to the engineer for approval prior to installation.

143. Ramp Closure Gates 30-FT, Item 662.1030.S; Ramp Closure Gates 37-FT, Item 662.1037.S; Ramp Closure Gates 40-FT, Item 662.1040.S.

A Description

This special provision describes providing freeway on-ramp closure gates on type 5 steel luminaire poles.

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 F3125. For the ramp closure gate locking mechanism, furnish a 3/4-inch handle nut.

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.

C Construction

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 structure identification plaques in the location the plan details show.

D Measurement

The department will measure the Ramp Closure Gates bid items as each individual installation, 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
662.1030.S	Ramp Closure Gates 30-FT	EACH
662.1037.S	Ramp Closure Gates 37-FT	EACH
662.1040.S	Ramp Closure Gates 40-FT	EACH

Payment for the Ramp Closure Gate bid items is full compensation for providing ramp closure gates including support poles; for gate arm assemblies including guides, collars, and gate arms; and for structure identification plaques.

stp-662-005 (20191121)

144. Intelligent Transportation Systems (ITS) – Control of Materials.

Standard spec 106.2 – Supply Source and Quality

Add the following to standard spec 106.2:

The department will furnish a portion of equipment to be installed by the contractor. This department-furnished equipment includes the following:

Department-Furnished Items
6-Count Fiber Optic Cable
72-Count Fiber Optic Cable
Fiber Optic Splice Enclosures
Fiber Optic Termination Panels
Microwave Vehicle Detectors
Cellular Modems
50-Foot Camera Poles
CCTV Cameras
Ethernet Switches
ITS Field Cabinets
Pole Mounted Cabinets
Solar Power Systems

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 locations are the responsibility of the contractor.

Standard spec 106.3 – Approval of Materials

Add the following to standard spec 106.3:

Design/Shop Drawings

Before 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:

1. Mounting assemblies for the vehicle speed and classification sensors, including their attachment to the structure.
2. Mounting LED warning signs to the sign structure.
3. Mounting detail for dynamic message signs.
4. 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.

stp-670-005 (20150630)

145. Intelligent Transportation Systems - General Requirements.

A Description

A.1 General

This special provision describes providing elements for an Intelligent Transportation System (ITS) in or along the existing roadway as the plans show.

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 before 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.4 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:**
    - 4.1. **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.
    - 4.2. **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.
    - 4.3. **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:**
    - 5.1. **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.
    - 5.2. **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.5 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.6 Surge Protection

Low-voltage signal pairs, including twisted pair communication cable 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 labeling methods before 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

The department will not measure the work performed under this special provision.

E Payment

The department will pay for the work performed under this special provision under the contract ITS bid items.

stp-670-010 (20100709)

146. Install ITS Field Cabinet, Item 673.0200.S.

A Description

This special provision describes installing a department-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.

stp-673-005 (20100630)

147. 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, fittings, 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 conduit conforming 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 service panel, to provide an entrance on the back of the cabinet for cable from the pole mounted intelligent transportation systems equipment, and to mount the service panel to the cabinet as shown in the details. Remove all sharp edges or burrs, or both, caused by the cutting or drilling process. Seal all openings 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 the plans show, 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 and conduit/wire entrances; and for all testing.

stp-673-010 (20100630)

148. Removing 50-Foot Camera Pole, Item 677.9051.S.

A Description

This special provision describes removing existing camera poles.

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 (Height) 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.

stp-677-901 (20100630)

149. Removing CCTV Camera, Item 677.9200.S.

A Description

This special provision describes removing existing CCTV cameras from existing camera poles as the plans show.

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 before beginning work on removing the camera. Any damage or improper operation not noted at the meeting, or before the contractor starting work on the removal, will be assumed to be the fault of the contractor; repair or replace the camera. 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.

stp-677-902 (20100630)

150. Communication Systems.

Replace standard spec 678.2.1(1) with the following:

(1) The department will furnish fiber optic cable, splice enclosures, Ethernet switches, wireless antennas, and cellular modems.

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 three working days prior to picking up the materials.

Replace standard spec 678.5(6) with the following:

(6) Payment for Install Ethernet Switches and Install Wireless Antennas is full compensation for transporting and installing the devices; for cables and connectors; and connecting the devices.

151. Install Overhead Freeway DMS Full Matrix, Item 678.0100.S.

A Description

This special provision describes installing a state-furnished, or an existing salvaged, dynamic message sign on a new sign structure.

B Materials

The department will provide the sign, or it will be salvaged, controller, and the control cable. The control cable will be multi-mode fiber optic cable.

Use an AWG #6 copper wire or equivalent bonding straps to bond the sign and cabinet to the structure. Use an AWG #6 solid, bare copper wire to bond the sign structure to ground rods.

1. For the three wires carrying 120/240 VAC power from the cabinet to the sign, use single conductor, stranded copper, 120/240 VAC, XLP insulated, USE rated wire. Size the wire to carry the maximum amperage permitted by the main breakers in the sign.

Provide a 100-amp 120/240-VAC load center in the controller cabinet, along with breakers recommended by the sign manufacturer.

C Construction

Install the load center so that the main breakers control all power to the sign and cabinet. Provide at least three branch circuits, one for the sign, one for the controller and communication equipment, and one for all cabinet accessories, such as fan, light, and heater. Only protect the branch serving the controller and communication equipment with the second stage of the surge protector. Connect the power and control cables according to the manufacturer's recommendations. Run the cables in rigid metallic conduit or flexible metallic conduit, or combination of these, within the sign structure.

Bond the bottom of the sign structure to one or more ground rods. Use exothermic welding at each end of the ground wire, unless the steel structure has a suitable grounding lug. Use a device that measures resistance to ground using the three-point fall-of-potential method to ensure that the resistance from the sign's ground bar to ground does not exceed 4 ohms. Add more ground rods if necessary, to achieve this requirement.

D Measurement

The department will measure Install Overhead Freeway DMS Full Matrix by each sign, acceptably installed and tested.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
678.0100.S	Install Overhead Freeway DMS Full Matrix	EACH

Payment is full compensation for installing and testing the sign and controller; providing cables, conduits, and fittings; for testing the sign; and for transporting materials.

stp-678-010 (20100630)

152. QMP Concrete Pavement Special Requirements.

A Description

This is a specialized QMP Concrete Pavement specification modified for mainline concrete pavement and freeway entrance and exit ramps. This special provision describes flexural strength during the mix design process and accepting concrete pavement based on flexural strength, optimized aggregate gradation, optional optimized mixture designs, and associated additional requirements for class 1 concrete used in 10-Inch and 12-Inch Concrete Pavement.

Apply this special provision only to the following bid items:

- 415.0410 Concrete Pavement Approach Slab
- SPV.0180.0101 Concrete Pavement 12-Inch Special
- SPV.0180.0103 Concrete Pavement 10-Inch Special

Supplement standard spec 501,701, 710, and 715 as follows:

B Materials

B.1 Class I Concrete Mixes

B.1.1 General

Add the following to standard spec 501.2.5.1 as paragraph five:

(5) Use clean, hard, durable crushed limestone with 100 percent 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 Optimized Aggregate Gradation

Replace standard spec 715.2.2 with the following:

A Job Mix Formula (JMF) contains all of the following:

- Proportions for each aggregate fraction conforming to table 1.
- Individual gradations for each aggregate fraction.
- Composite gradation of the combined aggregates including working ranges on each sieve according to table 2.

Submit the target JMF and aggregate production gradation test results to the engineer for review 10 business days before initial concrete placement.

TABLE 1 TARANTULA CURVE GRADATION BAND

SIEVE SIZES	PERCENT RETAINED
2 in.	0
1 1/2 in.	
1 in.	≤16
3/4 in.	≤20
1/2 in.	4-20
3/8 in.	4-20
No. 4	4-20
No. 8[1]	≤12
No. 16[1]	≤12
No. 30[1] [2]	4-20
No. 50 [2]	4-20
No. 100 [2]	
No. 200 [2]	

[1] Minimum of 15% retained on the sum of the #8, #16, and #30 sieves.

[2] Conform to 24-34% retained of fine sand on the #30-200 sieves.

TABLE 2 JMF WORKING RANGE

SIEVE SIZES	WORKING RANGE[1] (PERCENT)
2 in.	+/- 5
1 1/2 in.	+/- 5
1 in.	+/- 5
3/4 in.	+/- 5
1/2 in.	+/- 5
3/8 in.	+/- 5
No. 4	+/- 5
No. 8	+/- 4
No. 16	+/- 4
No. 30	+/- 4
No. 50	+/- 3
No. 100	+/- 2
No. 200	

[1] Working range limits of composite gradation based on moving average of 4 tests.

Replace standard spec 710.5.6 with the following:

Determine the complete gradation, including P200, using a washed analysis for both fine and coarse aggregates. Test each stockpile for each component of aggregate once per 1,500 cubic yards during concrete production. Test each stockpile for each component aggregate daily if production rates exceed 250 cubic yards a day.

Take samples by one of the following sampling methods:

1. At the belt leading to the weigh hopper.
2. Working face of the stock piles at the concrete plant if approved by the engineer.

The department will take independent QV samples using the same sampling method the contractor uses for QC sampling. QV samples may be taken by the contractor's QC personnel if witnessed by the department's QV personnel. The department will split each QV sample and retain half for all dispute resolutions. 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.

If, during concrete production, the moving average of four for any sieve fall outside the allowable JMF working range do the following:

1. Notify the engineer of the test results within 1 business day from the time of sampling.
2. Make immediate adjustments to the JMF, within the limits specified in Table 3;
3. Review JMF adjustments with the engineer. Both the contractor and engineer will sign the adjusted JMF if the adjustments comply with Table 3.
4. If the moving average of four falls outside the adjusted allowable working range, stop production and provide a new mix design including JMF to the engineer.

TABLE 3 ALLOWABLE JMF ADJUSTMENTS

SIEVE SIZES	ALLOWABLE ADJUSTMENT (PERCENT)
>= No. 4	+/- 5
No. 8 – No. 30	+/- 4
No. 50	+/- 3
No. 100	+/- 2

B.1.2.1 Dispute Resolution

The department will resolve disputes as specified in standard spec 106.3.4.3.5 using QV split samples.

B.1.2.2 Sublot and Lot Size

A sublot consists of up to 1,500 cubic yards. A lot consists of two sublots.

B.1.3 Optimized Concrete Mixtures

Excluding Concrete Pavement HES 12-Inch Special, the contractor may use a reduced cementitious content for concrete pavement placed if the contractor does the following:

1. Submit aggregate gradation result records no more than 2 years old when developing the mix design.
2. Determine the volume of voids in the optimized aggregates using ASTM C29.
3. Download and follow the instructions tab of the Optimized Gradation and Mix Design Spreadsheet located at:

   https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/qmp/default.aspx
4. Design an appropriate paste content based upon the Performance-based PCC Mix Design Guide located at:

   https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/qmp/default.aspx
5. Provide a minimum Vpaste/Vvoids of 1.25. (Paste/Void ratio equals the volume of paste divided by the volume of voids.).
6. Evaluate workability of trial batches by following section 6.8 of AASHTO Draft Performance Engineered Concrete Pavement Mixtures Specifications located at:

   https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/qmp/default.aspx
7. Submit trial batch workability results when submitting the mix design.
8. Submit the CP Tech center computer spreadsheet concrete mix design to the engineer for review at least 3 business days before producing concrete.
9. Provide a minimum cement content of 520 pounds per cubic yard.
10. The contractor may use class C fly ash or grade 100 or 120 slag as a partial replacement for cement. For binary mixes use up to 30% fly ash or slag. For ternary mixes use up to 30% fly ash plus slag in combination. Replacement values are in percent by weight of the total cementitious material in the mix.
11. See CMM 8-70.2.2.3 for additional guidance.

C Construction

C.1 Class I Concrete Testing

C.1.1 Lots by Lane-Feet

Add the following to standard spec 715.3.1.2.2 as paragraph three:

(3) A sublot is 350 linear feet for 3-lane paving width or 2-lane plus shoulder.

C.2 Strength Evaluation

Test flexural strength according to AASHTO T97.

Replace 710.5.5 with the following:

710.5.5 Strength

(1) Cast all 6-inch by 12-inch cylinders or 6-inch x 6-inch x 21-inch beams in a set from the same sample. Do not cast more than one set of specimens from a single truckload of concrete. Mark each specimen to identify the lot and sublot or location on the project it represents.

(2) Provide facilities for initial curing. For up to 48 hours after casting, maintain the temperature adjacent to the specimens in the range of 60 to 80 F and prevent moisture loss. Between 24 and 48 hours after casting, transport the specimens to a department-qualified laboratory for standard curing until testing at 28 days.

(3) Determine the 28-day strength of each specimen in psi. Test each specimen to failure. Use a testing machine that automatically records the date, time, rate of loading, and maximum load of each specimen. Provide a printout of this information for each specimen tested.

Replace standard spec 715.2.1(2) with the following:

(2) The contractor need not provide separate laboratory mix designs for high early strength concrete nor provide routine 28-day strength tests during placement for high early strength concrete.

Replace standard spec 715.2.3.1(1) with the following:

(1) Provide both compressive and flexural strength information to demonstrate the strength of the proposed mix design. Use either laboratory strength data for new mixes or field strength data for established mixes. Use at least 5 pairs of cylinders to demonstrate 28-day compressive strength will equal or exceed the 85 percent within limits criterion specified in 715.5.2. Use at least 5 pairs of beams for flexural strength. Demonstrate that the 28-day flexural strength will equal or exceed 650 psi.

Replace standard spec 715.3.1.1(1) with the following:

(1) Provide slump, air content, concrete temperature, and strength test results as specified in 710.5. Provide a battery of QC tests, consisting of results for each specified property, using a single sample randomly located within each sublot. Cast 3 specimens for strength evaluation.

Replace standard spec 715.3.1.3(1) with the following:

(1) The department will perform verification testing for air content, slump, temperature, and strength at a minimum of 1 verification test per lot.

Replace standard spec 715.3.2.1 with the following:

715.3.2.1 General

(1) The department will make pay adjustments for strength on a lot-by-lot basis using the strength of contractor QC specimens. The department will assess concrete for removal and replacement based on a sublot-by-sublot analysis of core strength. Perform coring and testing, fill core holes with an engineer approved non-shrink grout, and provide traffic control during coring.

(2) Randomly select 2 QC strength specimens to test at 28 days for percent within limits (PWL). Compare the strengths of the 2 randomly selected QC specimens and determine the 28-day sublot average strength as follows:

- If the lower strength divided by the higher strength is 0.9 or more, average the 2 QC specimens.
- If the lower strength divided by the higher strength is less than 0.9, break one additional specimen and average the 2 higher strength specimens.

Replace standard spec 715.3.2.2.1 with the following:

715.3.2.2.1 Pavement

(1) If a sublot strength is less than 550 psi, the department may direct the contractor to core that sublot to determine its structural adequacy and whether to direct removal. Cut and test cores according to AASHTO T24 as and where the engineer directs. Have an HTCP-certified PCC technician I perform or observe the coring.

(2) The sublot pavement is conforming if the compressive strengths of all cores from the sublot are 3000 psi or greater or the engineer does not require coring.

(3) The sublot pavement is nonconforming if the compressive strengths of any core from the sublot is less than 3000 psi. The department may direct removal and replacement or otherwise determine the final disposition of nonconforming material as specified in 106.5.

C.2.1 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

715.5.1 General

(1) The department will pay incentive for strength under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
715.0415	Incentive Strength Concrete Pavement	DOL
715.0502	Incentive Strength Concrete Structures	DOL

(2) Incentive payment may be more or less than the amount the schedule of items shows.

(3) The department will administer disincentives for strength under the Disincentive Strength Concrete Pavement and Disincentive Strength Concrete Structures administrative items.

(4) The department will adjust pay for each lot using PWL of the 28-day sublot average strengths for that lot. The department will measure PWL relative to the lower specification limit of 650 psi for pavements and 4000 psi for structures. The department will not pay a strength incentive for concrete that is nonconforming in another specified property, for ancillary concrete accepted based on tests of class I concrete, or for high early strength concrete unless placed in pavement gaps as allowed under standard spec 715.3.1.2.1.

(5) Submit strength results to the department electronically using the MRS software. The department will validate contractor data before determining pay adjustments.

(6) All coring and testing costs under standard spec 715.3.2.2 including filling core holes and providing traffic control during coring are incidental to the contract.

Replace standard spec 715.5.2 with the following:

715.5.2 Pavements

(1) The department will adjust pay for each lot using equation “QMP 6.01” as follows:

Percent Within Limits (PWL)	Pay adjustment (dollars per square yard)
	(0.2 x PWL) - 19
	0
	(2.0/35 x PWL) - 170/35
<50	-2

(2) The department will not pay incentive if the lot standard deviation is greater than 60 psi.

(3) For lots with a full battery of QC tests at less than 4 locations, there is no incentive but 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 650 psi by $2 per square yard.

(4) For integral shoulder pavement and pavement gaps accepted using tests from the adjacent travel lane, the department will adjust pay using strength results of the travel lane for integrally placed concrete shoulders and pavement gaps regardless of mix design and placement method, included in a lane-foot lot.

153. EBS Excavation, Item SPV.0035.0001.

A Description

This special provision describes excavating and disposing of material taken below th subgrade of future pavement structures at locations determined by the engineer.

B Materials

Excavate materials below subgrade not classified as rock, stone piles and stone fences, or marsh excavation. Perform work according to standard spec 205.2.2 and as hereinafter provided.

C Construction

Perform work according 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.0035.0001	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.

154. EBS Backfill, Item SPV.0035.0002.

A Description

This special provision describes backfilling EBS Excavation with select crushed material.

B Materials

Furnish all materials according to standard spec 312.2 and as herein 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.0035.0002	EBS Backfill	CY

Payment 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.

155. Excavation, Hauling, and Reuse of Low-Level Contaminated Soil, Item SPV.0035.0003.

A General

A.1 Description

This special provision describes excavating, relocating, and reusing low-level petroleum- and metal (arsenic and lead)-contaminated soil within the project limits or at a WDNR-approved off-site location.

Perform this work according 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 low-level petroleum- or metal (arsenic and lead)-contaminated soil is present at the following locations as shown on the plans:

- Station 11+25RDE to 12+65RDE from 10 feet right of reference line to project limits right, from approximately 0 to 12+ feet below grade. Approximately 785 cubic yards (approximately 1,335 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.

- Station 12+65RDE to 13+55RDE from 10 feet right of reference line to project limits right, from approximately 0 to 4 feet below grade. Approximately 475 cubic yards (approximately 808 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.

- Station 13+55RDE to 16+10RDE from 10 feet right of reference line to project limits right, from approximately 0 to 12+ feet below grade. Approximately 2,825 cubic yards (approximately 4,803 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.

- Station 16+55RDE to 17+25RDE from 10 feet right of reference line to project limits right, from approximately 0 to 12+ feet below grade. Approximately 475 cubic yards (approximately 808 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.

    - Station 109+75NO to 110+15NO from 45 feet to 95 feet left of reference line, from approximately 1 to 14 feet below grade. Approximately 500 cubic yards (approximately 850 tons at an estimated 1.7 tons per cubic yard).

    - Station 110+15NO to 113+00NO from 100 feet left of reference line to 90 feet right of reference line, from approximately 1 to 16+ feet below grade. Approximately 13,100 cubic yards (approximately 22,270 tons at an estimated 1.7 tons per cubic yard).

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.

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.

If dewatering is required at the above location, conduct the dewatering according to Section C below.

A.3 Reuse of Low-Level Contaminated Soils

Soil excavated from the locations listed in A.2 is characterized as Low-Level Contaminated Soil and shall be reused as fill at the following locations:

- Within the project limits in the area located along IH 41/USH 45 SB from Station 426+75NS to 435+50NS to the left of the reference line, along Ramp NOC from Station 727+00NOC to 733+25NOC to the right of the reference line and along Ramp NOG from Station 730+00NOG to 733+00NOG to the left of the reference line.

- Within the project limits in the area located along IH 41/USH 45 NB from Station 437+50NS to 445+00NS to the right of the reference line, along Ramp NOA from Station 737+75NOA to 745+00NOA to the left of the reference line, and along Ramp NOB from Station 724+25NOB to 728+75NOB to the left of the reference line.

Reuse soil deposited at this location shall be capped with 1 to 2 feet of soil which shall be covered with topsoil and then seeded. Soils that are reused as project fill should not contain crushed asphalt or other non-exempt solid wastes.

A.4 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.state.wi.us

A.5 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.
Address:	150 N. Patrick Blvd. Ste. 180, Brookfield, WI 53045
Phone:	(262) 901-2126
Fax:	(262) 879-1220
E-mail:	bbergmann@trccompanies.com

The role of the environmental consultant will be limited to:

- Determining the location and limits of low-level contaminated 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 low-level contaminated soil are in conformance with the low-level contaminated soil management methods for this project as specified herein; and,

- Obtaining the necessary approvals for the reuse of low-level contaminated 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 low-level contaminated soil areas. Coordinate with the environmental consultant to ensure that the environmental consultant is present during excavation activities in the low-level contaminated 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 reuse of the excavated low-level contaminated soil 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 low-level contaminated soil excavated and hauled for reuse at the designated reuse location.

The environmental consultant will periodically evaluate soil excavated from the area specified 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 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 so as not to contain free liquids.
If dewatering is required in an area of known contamination, water generated from dewatering activities may contain contaminants and require special handling and disposal. Such water may, with approval of the City of Wauwatosa and the Milwaukee Metropolitan Sewerage District (MMSD), be discharged to the sanitary sewer as follows:

- Meet all applicable requirements of the MMSD including the control of suspended solids. Perform all necessary monitoring to document compliance with MMSD's requirements. Furnish, install, operate, maintain, disassemble, and remove treatment equipment necessary to comply with MMSD's requirements.

- Ensure continuous dewatering and excavation safety at all times. Provide, operate, and maintain adequate pumping equipment and drainage and disposal facilities.

Notify the engineer of any dewatering activities and obtain any permits necessary to discharge water. Provide copies of such permits to the engineer. 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 and dewatering in the contaminated area are considered incidental to this pay item. The Wisconsin Department of Transportation will be the generator of regulated solid waste from the construction project.

Limit excavation in the locations described above in A.2 to minimize the handling of groundwater. Notify the engineer of any dewatering activities and obtain any permits necessary to discharge or dispose of contaminated 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.

D Measurement

The department will measure Excavation, Hauling, and Reuse of Low-Level Contaminated Soil in cubic yards of low-level contaminated soil reused as documented by the engineer.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0035.0003	Excavation, Hauling, and Reuse of Low-Level Contaminated Soil	CY

Payment is full compensation for excavating, segregating, loading, hauling, and placing of low-level petroleum- and metal-contaminated soil; obtaining solid waste collection and transportation service operating licenses; assisting in the collection of soil samples for field evaluation; and dewatering of soils prior to transport, if necessary.

156. Backfill Controlled Low Strength UPRR, Item SPV.0035.0800.

A Description

This special provision describes furnishing and placing a controlled low strength material designed for use as fill for the abandonment of culverts or pipes.

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 before casting successive lifts such that it can support foot traffic without indenting more than 2 inches in approximately 1 hour. Provide a mixture that also meets the following requirements.

Test	Method	Value
Flow (inch)	ASTM D-5971	9 min
Compressive Strength (psi)	ASTM D-6024	50 min. @ 1 hour 50-80 @ 28 days 80-300 @ 90 days

Chemical admixtures to control air content and setting time are allowable. Ten days prior to placement, furnish the engineer and the UPRR 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 in lifts no taller than 3 feet 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 or UPRR engineer if applicable 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 or UPRR engineer if applicable 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 UPRR 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
SPV.0035.0800	Backfill Controlled Low Strength UPRR	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.

157. 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 spec 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 spec as follows:

501.2.5.4.1 General

Replace the entire text with the following:

(1) Use clean, hard, durable crushed limestone with 100percent 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 quantity 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 discharge all 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 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 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 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 before each bridge deck pour.

(5) Compute the evaporation rate from the predicted air 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 engineer's discretion, 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 before 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 the engineer's written permission.

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 within a timeframe acceptable to the engineer following the micro texture.

(21) 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 before 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.

(22) 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 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 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 during the first 7 days of the curing period except as allowed 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 during 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 within a timeframe acceptable to the engineer 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.

502.4.2 Concrete for Bridges

Replace with the following:

The department will pay for measure HPC Masonry Structures.

502.5.1 General

Replace paragraph one with the following:

(1) The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0035.4000	HPC Masonry Structures	CY

Lighting for nighttime bridge deck placement is included.

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) in this special provision.
6. AASHTO T 309 Temperature.
7. Water Cement Ratio.

(1C) The 28-day compressive strength must be at least 4000 psi. The 28-day results of the permeability test must be at most 1500 coulombs.

Replace paragraph two with the following:

(2) Provide a cementitious content within a range of 470 to 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, class F fly ash, or grade 100 or 120 slag as a partial replacement for portland cement. For binary mixes use fly ash within a range of 15 to 30 percent or slag within a range of 20 to 30 percent. For ternary mixes use fly ash plus slag in combination within a range of 15 to 30 percent. Percentages are stated as percent by weight of the total cementitious material in the mix.
2. Use a type IP, IS, or IT blended cement.

sef-715-005 (20180104)

158. Rapid Set Deck Repair, Item SPV.0035.4010.

A Description

This special provision describes furnishing, placing and curing a rapid setting non-shrink patch material on the sawed deck preparation areas of the concrete bridge deck. Perform the work conforming to standard spec 509.

B Materials

B.1 Patching Materials

Furnish a rapid setting non-shrink material designed for repairing concrete decks from the department's Approved Products List for "Rapid Setting Concrete Patch Material". The material shall be capable of obtaining a minimum compressive strength of 3000 psi within 3 hours. The patch material must be compatible with the existing concrete deck, reinforcing steel, and the polymer or asphalt overlay product (if applicable); and have a proven record of at least five successful applications in climates similar to Wisconsin. The use of chloride accelerators or other corrosion inducing products is prohibited.

A minimum of ten working days prior to construction, submit the manufacturer's product data sheets, material sources, mix designs, and supporting performance documentation to the engineer for approval.

B.2 Materials Quality Control Testing

For projects that allow 3 hours or more of cure time prior to opening to traffic, submit certified test results from an independent lab showing that the patch material can obtain 3000 psi within 3 hours of placement under the same curing conditions as the project.

For projects that require bridge decks to be open to traffic with less than 3 hours of cure time, perform quality control testing. For material extended with aggregates, perform cylinder breaks per ASTM C39. Make a minimum of two compressive strength test cylinders per shift per batch plant and cure under the same conditions as the deck patches. For material not using coarse aggregates, perform cube breaks per ASTM C109. Make a minimum of two compressive strength test cubes per shift per batch plant and cure under the same conditions as the deck patches. Provide test results to the engineer showing 3000 psi strength is obtained prior to opening the bridge deck to traffic.

For projects requiring ASTM C39 or ASTM C109 testing, furnish a department-certified mobile laboratory to perform the testing.

C Construction

Clean and prepare the area to be patched per the manufacturer's recommendations and as follows. After sawed deck preparation work is complete, blast clean the area and any exposed reinforcing steel. Thoroughly clean the surface upon which the new patch material is to be placed by brooming and using air pressure to remove all loose particles and dust. Apply a bonding agent, as necessary and as recommend by the patch material manufacturer, to surfaces to be covered by patch material.

Place patch material to produce plane surfaces that conform to the grade and elevation of the adjoining surfaces. Where a polymer or asphalt overlay will not be placed over the patch, finish the surface by tining or applying exposed angular aggregate as approved by the engineer. Where a polymer or asphalt overlay will be placed over the patch, shotblast the patch in the same fashion as the remainder of the bridge deck.

D Measurement

The department will measure Rapid Set Deck Repair in volume 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.0035.4010	Rapid Set Deck Repair	CY

Payment for Rapid Set Deck Repair is full compensation for furnishing, hauling, preparing, placing, finishing, curing, and protecting all materials; and for materials quality control testing.

159. Lightweight Foamed Concrete Fill, Item SPV.0035.4020.

A Description

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.1 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 Below Top 3 Feet of LFCF)	Test Method
Cast Density (after pumping)	20.0 - 25.0 pcf	ASTM C 796
Maximum Dry Density	25.0 pcf	ASTM C 796
Minimum Dry Density	20.0 pcf	ASTM C 796
Unconfined Compressive Strength	10 psi minimum at 24 hours curing 40 psi minimum at 28 days curing	ASTM C 796
Freeze-Thaw Resistance – minimum cycles @ relative E = N/N $\geq$ 70% per ASTM C666* as modified below	Relative Young's Modulus, E $\geq$ 70% at 100 cycles.	ASTM C 666* as modified below
Coefficient of permeability	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 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 Materials Management Section, Wisconsin Department of Transportation, Bureau of Technical Services, Truax Center, 3502 Kinsman Blvd., Madison, WI, 53704; telephone (608) 266-3246; or on the internet at: https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/qual-lab-req.aspx. 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 + 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. When LFCF is used as backfill behind soldier pile walls with tieback anchors, stressing of tieback anchors will not be permitted until it has attained the specified 28-day compressive strength.

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

If dampproofing is specified in the plans, apply in accordance 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 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 the MSE wall 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.0035.4020	Lightweight Foamed Concrete Fill	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, if applied, will be measured and paid for separately in accordance to standard spec 516.

160. Portable Speed Trailer, Item SPV.0045.0900.

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 conforming to the appropriate 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. Place the sign so that in the operating mode the bottom of the message panel is 7 feet or higher above the top of curb or near edge of pavement. Orient the message panel so the message is legible from 850 feet under both day and night conditions.

C Construction

Furnish, haul, place, erect, re-erect, operate, maintain, move, and remove devices at locations as the plans show 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 10 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-frame 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.0045.0900	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-643-025 (20171004)

161. Removing Old Sign Structure S-40-233, Item SPV.0060.0001;

A General

Work under these items consists of removing existing sign structures and their concrete base foundations and disposing of resulting materials according 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 concrete foundations of each sign structure.

D Measurement

The items of Removing Old Sign Structure (number) will be measured as a unit for each specific sign structure removed according 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.0060.0001	Removing Old Sign Structure S-40-233	EACH

Payment is full compensation for removing and disposing of all materials as set forth above including sign base foundations; for cutting off anchor bolts and conduits; and for sealing conduits.

162. Concrete Barrier Transition Type G1, Item SPV.0060.0101; Concrete Barrier Transition Type G2, Item SPV.0060.0102; Concrete Barrier Transition Type G3, Item SPV.0060.0103; Concrete Barrier Transition Type G4, Item SPV.0060.0104; Concrete Barrier Transition Type G5, Item SPV.0060.0105; Concrete Barrier Transition Type M1, Item SPV.0060.0110.

A Description

This special provision describes constructing Concrete Barrier Transition (Type) according to standard spec 603, details shown in the plans, and in this special provision.

B (Vacant)

C Construction

Construct the Concrete Barrier Transition (Type) to present a smooth, uniform appearance in its final position conforming to the horizontal and vertical lines the plans show or ordered by the engineer, and free of lumps, sags or other irregularities.

D Measurement

The department will measure Concrete Barrier Transition (Type) by each individual unit, acceptably placed according 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.0060.0101	Concrete Barrier Transition Type G1	EACH
SPV.0060.0102	Concrete Barrier Transition Type G2	EACH
SPV.0060.0103	Concrete Barrier Transition Type G3	EACH
SPV.0060.0104	Concrete Barrier Transition Type G4	EACH
SPV.0060.0105	Concrete Barrier Transition Type G5	EACH
SPV.0060.0110	Concrete Barrier Transition Type M1	EACH

Payment is full compensation for furnishing all materials, forming, placing, finishing, and curing of barrier transitions.

163. Concrete Barrier Transition Type S42C to S56C, Item SPV.0060.0112.

A Description

This special provision describes constructing Concrete Barrier Transition S42C to S56C according to standard spec 603, details shown in the plans, and in this special provision.

B (Vacant)

C Construction

Construct the Concrete Barrier Transition S42C to S56C to present a smooth, uniform appearance in its final position conforming to the horizontal and vertical lines the plans show or ordered by the engineer, and free of lumps, sags or other irregularities.

D Measurement

The department will measure Concrete Barrier Transition S42C to S56C by each individual unit, acceptably placed according 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.0060.0112	Concrete Barrier Transition Type S42C to S56C	EACH

Payment is full compensation for furnishing all materials, forming, placing, finishing, and curing of barrier transitions.

164. Concrete Barrier Type S42 End Anchor, Item SPV.0060.0115.

A Description

This special provision describes constructing end anchorages for single slope concrete barrier conforming to standard spec 603, details shown in the plans and as provided in this special provision.

B (Vacant)

C Construction

Construct the Concrete Barrier S42 to present a smooth, uniform appearance in its final position conforming to the horizontal and vertical lines the plans show or ordered by the engineer, and free of lumps, sags or other irregularities.

D Measurement

The department will measure Concrete Barrier S42 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.0060.0115	Concrete Barrier Type S42 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.

165. Mobilizations Emergency Pavement Repair, Item SPV.0060.0120.

A Description

This special provision describes furnishing and mobilizing personnel, equipment, traffic control, and materials to the project site to repair the existing pavement for emergencies 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.0060.0120	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-999-025 (20170310)

166. Section Corner Monuments, Item SPV.0060.0125.

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.

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 that conform to standard spec 305. Furnish 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 contractor will contact the engineer and SEWRPC at (262) 953-4295 at least two weeks before starting construction operations or the preconstruction meeting to allow for section corner monument perpetuation.

Contractor must excavate and completely remove the existing monument. Contractor is responsible for providing a backfilled 3 to 4 foot deep hole where existing monument was removed. Contractor is responsible to 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’ x 2’ “box out” or 24” 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 the contractor and SEWPRC.

Contact Information:

Attn: Rob Merry
Southeastern Wisconsin Regional Planning Commission
W239 N1812 Rockwood Drive
P.O. Box 1607
Waukesha, WI 53187-1607
Phone (262) 953-4289
Cell (920) 912-1036
Fax (262) 547-1103
rmerry@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.0060.0125	Section Corner Monuments	EACH

Payment is full compensation for 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, for all coordination with SEWRPC.

SER-621-001 (20170530)

167. Cross Stitching Longitudinal Joints and Cracks, Item SPV.0060.0130.

A Description

This special provision describes tying existing concrete pavement slabs together by drilling holes, installing and anchoring epoxy coated tie bars diagonally across longitudinal joints or cracks. The work shall conform to the plan details for cross stitching tie bar installation and as hereinafter provided.

B Materials

Use epoxy coated tie bars that conform to the requirements prescribed in standard spec 505.2.6.1 and 505.2.6.3.

Use an epoxy conforming to the requirements on the department's Approved Products List.

C Equipment

Use a drill with tungsten carbide bits. Control the forward and reverse travel of the drills by mechanically applied pressure. Mount the drill on a suitable piece of equipment such that it is quickly transported and positioned. Rest and reference the drill rig frame on and to the pavement surface such that the drilled holes are cylindrical and repeatable in terms of position and alignment on the surface being drilled. Hand-held drills are not permitted.

D Construction

Install the tie bars as part of the cross stitching operation in the existing concrete pavement as shown in the details and according to the following specifications.

Drill the end holes in a slab at the offset, depth, and angle specified on detail drawing. Drill such that the hole centerlines are perpendicular to the joint or crack (in plan view) at each location being drilled. Adjacent holes are drilled in opposite directions across the joint or crack. Hole diameters are no more than 3/8" larger than the tie bar diameter. Repair cracks and spalls that result from drilling with a partial or full-depth repair as directed by the engineer.

Clean drilling dust, debris, and excess moisture from drill holes before inserting the epoxy grout and tie bar. Clean holes with oil-free and moisture-free compressed air. The compressor must deliver air at a minimum pressure of 120 cubic feet per minute and develop a minimum nozzle pressure of 90 psi. Insert the nozzle to the back of the hole to force out all dust and debris.

Inject the epoxy grout into the back of the drill hole. Use a grout with a workable viscosity, pumpable, yet thick enough to remain in the hole. Insert a sufficient volume of grout into the hole to provide a small quantity of excess material at the face of the concrete after fully inserting the bar.

Use a positive fixed displacement dispensing system, equipped with a nozzle of sufficient length to deposit the epoxy at the back of the drilled hole. Use a system equipped with a means of checking the mix ratio of the epoxy components. Use the manufacturer's recommended mix ratio and check the ratio at least once a day.

For minor quantities of tie bars, the contractor may use hand-powered mixing and injecting equipment capable of thoroughly mixing and depositing the epoxy grout at the back of the drill hole.

Insert the tie bar such that the anchoring material is evenly distributed around the tie bar. Use an amount that slightly extrudes out the hole as the tie bar is inserted. Remove the excess and trowel the anchoring material smooth to the pavement surface, filling any chipped areas.

Do not allow traffic on repaired area until the epoxy is cured as recommended by the manufacturer.

Ensure air temperatures and weather conditions meet manufacturers requirements for installation of epoxy.

E Measurement

The department will measure Cross Stitching Longitudinal Joints and Cracks by each tie bar installed and accepted.

F Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0130	Cross Stitching Longitudinal Joints and Cracks	Each

Payment is full compensation for furnishing all materials, including epoxy coated tie bars; drilling holes; installing tie bars; and furnishing and installing epoxy grout. No payment will be made for extra work required to repair damage to the adjacent pavement that occurred during drilling.

168. Crack and Damage Survey Single or Double Unit Residential, Item SPV.0060.0150; Crack and Damage Survey Multi-Unit Residential, Item SPV.0060.0155; Crack and Damage Survey Commercial Public or Industrial, Item SPV.0060.0160.

A Description

This special provision describes conducting a pre and post crack and damage survey of the residences and business and identifies the contractor's responsibilities for surveying, documenting, and monitoring the properties listed below per the requirements of this special provision:

Address	Type
10732 W Fisher Pkwy	Residential
10740 W Fisher Pkwy	Residential
11223 W Garfield Avenue	Double Unit Residential
1826 N Mayfair Road	Commercial Pampered Paws
2001 N Mayfair Road	Commercial United Food & Commercial Workers
11001 W Meinecke Avenue	Multi-Unit Residential Northern most building abutting Meinecke Ave
11170 W Meinecke Avenue	Residential
11305 W Meinecke Avenue	Residential
11306 W Meinecke Avenue	Residential
11111 W North Avenue	Commercial Holiday Inn Express
11121 W North Avenue	Commercial Extended Stay America
11155 W North Avenue	Commercial Denny's
11300 W North Avenue	Multi-Unit Residential
11306 W North Avenue	Multi-Unit Residential
11310 W North Avenue	Multi-Unit Residential
2405 N 111th Street	Multi-Unit Residential Western most building abutting Meinecke Ave
2368 N 112th Street	Residential
2372 N 112th Street	Residential
2376 N 112th Street	Residential
2410 N 112th Street	Residential
2416 N 112th Street	Residential

Address	Type
2430 N 112th Street	Residential
2434 N 112th Street	Residential
2132 N 113th Street	Residential
2315 N 113th Street	Residential
2323 N 113th Street	Residential
2327 N 113th Street	Residential
2333 N 113th Street	Residential
2339 N 113th Street	Residential
2343 N 113th Street	Residential
2349 N 113th Street	Residential
2353 N 113th Street	Residential
2363 N 113th Street	Double Unit Residential
2373 N 113th Street	Residential
2411 N 113th Street	Residential
2423 N 113th Street	Residential
2433 N 113th Street	Residential
2445 N 113th Street	Residential
2447 N 113th Street	Residential
2453 N 113th Street	Residential
2459 N 113th Street	Residential
2465 N 113th Street	Residential
2469 N 113th Street	Residential
2505 N 113th Street	Residential
2513 N 113th Street	Residential
2521 N 113th Street	Residential
2527 N 113th Street	Residential
2533 N 113th Street	Residential
2539 N 113th Street	Residential
2368 N 114th Street	Residential
2376 N 114th Street	Residential
2402 N 114th Street	Residential
2408 N 114th Street	Residential

B (Vacant)

C Construction

C.1 Pre Construction Surveys

Perform a pre-construction condition survey at the listed addresses and provide a copy of survey report(s) to the engineer no later than 30 calendar days prior to any vibration inducing (insert from vibe monitor) activities. The contractor shall have a professional engineer licensed in the State of Wisconsin and experienced in evaluating structural vulnerabilities and vibration monitoring perform the survey. The contractor shall document all aspects of the external and interior structural conditions through observations, actual measurements, plan sketches, digital videos and photographs, and any other data the preparer may deem appropriate.

The survey shall include documentation of interior sub-grade and above grade accessible walls, ceilings, floors, roof, and visible exterior as viewed from the grade level. It will detail (by engineering sketches, digital video, digital photographs, and notes) the existing structural, cosmetic, plumbing and electrical damage, but will not necessarily be limited to areas in buildings showing existing damage. Videos shall have a minimum resolution of 4K at 60 frames per second (fps) with extended dynamic range and video

stabilization and digital photographs shall have a minimum resolution of 12 megapixels. Mark existing cracks and vulnerabilities in such a way that future observations would clearly indicate whether cracks and vulnerabilities remained unchanged, and whether cracks opened, closed, or propagated.

The contractor is responsible for arranging with the property owner the right of entry to their property, in order to engage in crack and damage surveys. Furnish the engineer with copies of all right of entry notifications and agreements.

Electronically submit a written report with the inspector's name, date of inspection, descriptions and locations of defects and vulnerabilities, and digital videos and images.

Label each digital image and video with the following information:

ID: _____
Building Address: _____
View looking: _____
Date: _____
Photographer: _____

C.1 Post Construction Surveys

Perform a post-construction crack and damage survey and analysis at the residences and businesses listed above, to determine if any structural changes are the result of the construction activity. Provide the engineer with a copy of all post construction survey reports, digital photographs and videos, and analysis documents comparing pre and post structural condition no later than 90 days after completion of vibration inducing construction operations.

Any damage resulting from excessive vibration due to the contractor's operations or claims of damage during construction is the responsibility of the contractor to resolve.

D Measurement

The department will measure Crack and Damage Surveys as each unit of work, acceptably completed. Each unit of work consists of a pre and post construction crack and damage survey.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0150	Crack and Damage Survey Single or Double Unit Residential	EACH
SPV.0060.0155	Crack and Damage Survey Multi-Unit Residential	EACH
SPV.0060.0160	Crack and Damage Survey Commercial Public or Industrial	EACH

Payment is full compensation for performing pre and post-construction surveys, including all documentation, analysis, written reports, digital photographs, and videos.

169. Maintain and Salvage Crash Cushions Temporary Left In Place, Item SPV.0060.0165.

A Description

This special provision describes maintaining, salvaging and delivering temporary crash cushions left in place according to standard spec 614 and as hereinafter provided.

B Materials

Furnish any replacement materials for the temporary crash cushions left in place by others according to the pertinent requirements of standard spec 614.2

C Construction

Maintain and remove the temporary crash cushion according to standard spec 614.3.4

Salvage the crash cushions temporary left in place according to standard spec 614.3.9.

Remove and stockpile crash cushions temporarily left in place at an on-site location determined by the engineer. Give two days advance notice to Racine County and Milwaukee County before starting the salvaging work to coordinate delivery arrangements. For crash cushions being delivered to Milwaukee

County, contact Kevin Kent, Milwaukee County, 10320 W Watertown Plank Road, Milwaukee, WI, 53224 at (414) 454-4100.

D Measurement

The department will measure Maintain and Salvage Crash Cushions Temporary Left In Place as each individual crash cushion 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.0060.0165	Maintain and Salvage Crash Cushions Temporary Left In Place	EACH

Payment is full compensation for maintaining, salvaging, and delivering the crash cushions.

170. Marking Contrast Epoxy Special Marking Arrow, Item SPV.0060.0400.

A Description

This special provision describes furnishing and installing contrast epoxy special pavement marking according to standard spec 646.

B Materials

Furnish epoxy pavement marking materials according to Section 646.

C Construction

Contractor shall apply the 1 ½ inch wide black epoxy around the perimeter of the special marking. Construct epoxy pavement marking according to the pertinent requirements of standard spec 646.3 and 647.

D Measurement

The department will measure Marking Contrast Epoxy Special Marking Arrow according to standard spec 647.4 as each arrow, 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	Marking Contrast Epoxy Special Marking Arrow	EACH

Payment is full compensation for cleaning and preparing the pavement surface; furnishing and installing the material; and furnishing, placing, and removing temporary pavement marking, if necessary.

171. Remove Grooved in Pavement Marking Thermoplastic Arrows and Words, Item SPV.0060.0405.

A Description

This special provision describes removing grooved thermoplastic in accordance with specification section 646.3.1.4 and as herein provided

B Materials

Provide necessary materials to remove the marking completely.

C Construction

Remove the markings completely.

D Measurement

The department will measure Remove Grooved in Pavement Marking Thermoplastic Arrows and Words for complete removal.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0405	Remove Grooved in Pavement Marking Thermoplastic Arrows and Words	EACH

Payment is full compensation for removing pavement marking.

172. Baseline CPM Progress Schedule, Item SPV.0060.0601; Monthly CPM Progress Schedule Updates, Item SPV.0060.0602.

Replace standard spec 108.4 with the following:

108.4 Critical Path Method Progress Schedule

108.4.1 Definitions

(1) 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 in this special provision, 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.

Department's Project Schedule Template The department's project schedule template for the overall Zoo Interchange Freeway Program, including interim and final contract completion dates, and containing codes for use as a template for the development of the contractor's schedule.

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 Project Schedule Template

108.4.2.1 Project Schedule

(1) Within five business days after award, the department will provide its current Project Schedule Template, containing intermediate milestone constraints, standard activity codes, and a standard WBS for the contractor to use to develop its schedule.

108.4.2.2 Use of Project Schedule Template

(1) The Project Schedule Template provides information to assist the contractor in preparing its schedule. The Project Schedule Template is not a contract document. The logic contained in the Project's Schedule Template 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

(1) 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 interim completion dates specified in the Prosecution and Progress Special Provision. The contractor will schedule and attend a CPM Initial Workshop. If necessary, the engineer may modify the workshop schedule to ensure attendance by the necessary department and contractor personnel; however, the CPM Initial Workshop must be completed prior to issuing the Notice to Proceed. The CPM Initial workshop will include:

1. Department presentation of the use of CPM scheduling on the project and presentation of the department's master schedule.
2. Contractor presentation of the conceptual work plan for the project.
3. Department and contractor discussion of the level of detail on features in the CPM Initial Work Plan and the Baseline CPM Progress Schedule.

(2) Use the department-provided Project Schedule Template to develop the Initial Work Plan and the Baseline CPM Progress Schedule. Use the Project's Schedule Template ID coding structure to categorize activities by Contract, Stage, Location, and Responsibility to ensure compatibility with the Project Schedule Template and with schedules prepared by other contractors. Add additional activity codes as necessary, but do not delete the coding structure provided.

(3) To ensure compatibility with the Project Schedule Template, use the latest version of Primavera P6 Project Management, by Oracle Corporation, Redwood Shores, CA, to prepare the Initial Work Plan, Baseline CPM Progress Schedule, and Monthly CPM Updates.

(4) 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 before scheduling the work.

108.4.4 Submittals

108.4.4.1 Initial Work Plan

(1) Within ten business days after the CPM Initial Work Plan Workshop, submit an Initial Work Plan as follows:

1. Develop the Initial Work Plan using the Project Schedule 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 electronic copies of the Initial Work Plan and the corresponding Oracle Primavera P6 schedule (XER) in a format acceptable to the engineer.
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 monthly 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

(1) Within 15 business days after the CPM Initial Workshop, submit a Baseline CPM Progress Schedule and written narrative. The department will use the schedule to monitor the progress of the work.

1. Develop the Baseline CPM using the Project Schedule 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.
    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.

(1) Submit electronic copies of the Baseline CPM and the corresponding Oracle Primavera P6 schedule file (XER) in a format acceptable to the engineer.

(2) 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.

(3) 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.

(4) 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.

(5) 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.

(6) 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.

(7) 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

(1) Submit CPM Updates on a monthly basis after acceptance of the Baseline CPM as follows:

1. Include 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. Include 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 electronic copies of each CPM Update and the corresponding Oracle Primavera P6 schedule file (XER) in a format acceptable to the engineer.
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.

(2) 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

(1) Submit Three-Week Look-Ahead Schedules on a weekly basis after the notice to proceed (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. 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 underway and critical RFIs and submittals, based on the CPM schedule.
5. Details on other activities not individually represented in the CPM schedule.

(2) 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 all 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

(1) Provide estimated and actual weekly production rates for items of work on a weekly basis as follows:

1. Data on the following items by area or station:
    - 1.1. Retaining Walls
        - 1.1.1. Leveling Pads - LF
        - 1.1.2. Set Panels - SF
        - 1.1.3. Parapets - LF
        - 1.1.4. Wall Face - Bay
        - 1.1.5. Tie Backs – Each
        - 1.1.6. Anchor Slabs – LF
        - 1.1.7. Drilling - Each
        - 1.1.8. Coping – LF
        - 1.1.9. Footing - LF
    - 1.2. Bridge Construction
        - 1.2.1. Footings—Each
        - 1.2.2. Columns—Each
        - 1.2.3. Abutments—Each
        - 1.2.4. Pier Caps—Each
        - 1.2.5. Girder Spans – Each
        - 1.2.6. Decked Spans – Each
        - 1.2.7. Poured Spans – Each
    - 1.3. Roadway Excavation—CY per week
    - 1.4. Roadway Structural Section
        - 1.4.1. Grading/Subgrade Preparation—SY
        - 1.4.2. Base Material Placement—Ton
        - 1.4.3. Base Material Subgrade Preparation—SY
        - 1.4.4. Asphalt Pavement—Ton
        - 1.4.5. Concrete Pavement – SY
    - 1.5. Tunnels
        - 1.5.1. Drilled Shafts – Each
        - 1.5.2. Beam Seat/Cap - LF
        - 1.5.3. Girders - Each
        - 1.5.4. Deck – Percent
    - 1.6. Noise Walls
        - 1.6.1. Drill/Set Ground Mounted Posts - Each
        - 1.6.2. Install Ground Mounted Panels - Each
        - 1.6.3. Anchor/Set Structure Mounted Posts - Each
        - 1.6.4. Install Structure Mounted Panels - Each
2. The actual daily production for the past week and the anticipated weekly production for the next week.

(2) 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 all disagreements.

108.4.5 Progress Review Meetings

108.4.5.1 Weekly Progress Review Meetings

(1) 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

(1) 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

(1) 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.

(2) 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

(1) 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.

(2) 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

(1) 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.0060.0601	Baseline CPM Progress Schedule	EACH
SPV.0060.0602	Monthly CPM Progress Schedule Updates	EACH

(2) The department will only make progress payments for the value of materials, as specified in 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.

(3) The department will only make progress payments for the value of materials, as specified in 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.

(4) Payment is full compensation for 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. Then, the department will pay the contract unit price for each Monthly CPM Update acceptably completed.

sef-108-005 (20180404)

173. Exposing Existing Infrastructure Paved Area, Item SPV.0060.0603.

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 the locate.

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 contractor's 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 2 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 according to standard spec 205.3.3. Take precautions, including temporary shoring, in order to prevent any undermining of the existing roadway. Perform work according 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 slurry backfill 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.0060.0603	Exposing Existing Infrastructure Paved Area	EACH

Payment is full compensation for mobilization; for 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 all surveying associated with exposing existing infrastructure; for all maintenance of the location during construction; for all traffic control, safety barriers, and steel plating required; for temporary shoring; and for all finishing items including, but not limited to, base aggregate dense, slurry backfill, concrete pavement, HMA pavement, curb and gutter, and sidewalk located above the subgrade elevation.

174. Exposing Existing Infrastructure Unpaved Area, Item SPV.0060.0604.

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 the locate.

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 contractor’s 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 2 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 according to standard spec 205.3.3. Take precautions, including temporary shoring, in order to prevent any undermining of the existing roadway. Perform work according 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 slurry backfill, 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.0060.0604	Exposing Existing Infrastructure Unpaved Area	EACH

Payment is full compensation for mobilization; for 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 all surveying associated with exposing existing infrastructure; for all maintenance of the location during construction; for all traffic control, safety barriers, and steel plating required; for temporary shoring; for furnishing backfill slurry and backfilling the locate.

175. Traffic Control Close-Open Freeway Entrance Ramp, Item SPV.0060.0910.

A Description

This special provision describes closing and re-opening a freeway entrance ramp and associated auxiliary lane.

B (Vacant)

C Construction

Install or reposition traffic control devices required for closing a freeway entrance ramp and adjacent auxiliary lanes. Remove or return traffic control devices to their previous configuration when the closure is no longer required.

D Measurement

The department will measure Traffic Control Close-Open Freeway Entrance Ramp by each individual ramp closure, 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.0060.0910	Traffic Control Close-Open Freeway Entrance Ramp	EACH

Payment is full compensation for daily surveillance; preparing and submitting the daily surveillance report with hourly metered tickets; mobilization; sweeping; and disposing of materials. Traffic Control devices will be paid separately.

sef-643-001 (20180627)

176. Traffic Control Local Road Lane Closures, Item SPV.0060.0916.

A Description

This special provision describes closing and reopening a local road lane or lanes, including full closure conforming to standard spec 643, the plans, and as directed by the engineer.

B (Vacant)

C Construction

Install or reposition traffic control devices required for closing a local road or lanes of a local road. Remove or return traffic control devices to their previous configuration when the closure is no longer required.

D Measurement

The department will measure Traffic Control Local Road Lane Closures by each individual closure acceptably completed. The department will not measure the closure of a local road not deemed necessary by the engineer.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0916	Traffic Control Local Road Lane Closures	EACH

Payment is full compensation for closing and re-opening a local road lane or lanes.

sef-643-035 (20171004)

177. Traffic Control Close-Open Freeway to Freeway System Ramp, Item SPV.0060.0917.

A Description

This special provision describes closing and re-opening a freeway to freeway system ramp.

B (Vacant)

C Construction

Install or reposition traffic control devices required for closing a freeway system ramp and adjacent auxiliary lanes. Remove or return traffic control devices to their previous configuration when the closure is no longer required.

D Measurement

The department will measure Traffic Control Close- Open Freeway to Freeway System Ramp by each individual closure, 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.0060.0917	Traffic Control Close- Open Freeway to Freeway System Ramp	EACH

Payment is full compensation for closing and re-opening a freeway to freeway system ramp. Traffic Control devices will be paid separately.

sef-643-002 (20180627)

178. Traffic Control Full Freeway Closure, Item SPV.0060.0918.

A Description

This special provision describes closing and re-opening a freeway or expressway.

B (Vacant)

C Construction

Install or reposition traffic control devices required for a full freeway closure. Remove or return traffic control devices to their previous configuration when the full closure is no longer required.

D Measurement

The department will measure Traffic Control Full Freeway Closure by each individual freeway closure that is set up and later removed in each traffic direction, 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.0060.0918	Traffic Control Full Freeway Closure	EACH

Payment is full compensation for closing and re-opening the freeway. Traffic Control devices will be paid separately.

sef-643-003 (20180627)

179. Fixed Message Sign Portable Support Special, Item SPV.0060.0920.

A Description

This special provision describes the construction of special portable sign supports for fixed message signs for shielded applications only, as the plans show.

B Materials

Use lumber and hardware conforming to standard spec 634.2.1.

C Construction

Construct the Fixed Message Sign Portable Support Special as the plans show. Remove at the completion of the work.

D Measurement

The department will measure Fixed Message Sign Portable Support Special 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.0060.0920	Fixed Message Sign Portable Support Special	EACH

Payment is full compensation for providing, maintaining, and removing fixed message sign special portable supports.

sef-634-000 (20170310)

180. Dynamic Speed Display Sign, Item SPV.0060.0930.

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 according 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.0060.0930	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.

181. Moving Dynamic Speed Display Sign, Item SPV.0060.0935.

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 according 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.0060.0935	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.

182. Emergency Response to Traffic Incident Involving Concrete Barrier Temporary, Item SPV.0060.0940.

A Description

This special provision describes providing prompt response to an emergency repair request for damaged and/or dislodged temporary concrete barrier installed under this project that is damaged or displaced due to a vehicular collision during the time this contract is in effect.

B (Vacant)

C Construction

The contractor shall provide staff, equipment, and materials to the incident site within one hour of receiving a repair request from the responding agency. The contractor shall consult with the department's representative on potential repair or replacement options to restore the temporary concrete barrier to proper working condition. Staff and equipment deployed shall be capable of completing the needed repairs as quickly as possible once repair work is started. Repair work shall be completed off the traveled way to the maximum extent allowable. The contractor shall provide a time log of when the repair request was received and when staff arrived at the incident site. This information shall be submitted to the engineer, for verification, within 24 hours of the repair completion.

Contact information for the contractor's responsible party (the person or persons in charge of coordinating and completing repair efforts) shall be submitted to the engineer at the pre-construction meeting. This person(s) shall be available 24/7 during the duration of this contract. The contact information for the department's representative will be supplied to the contractor at the pre-construction meeting.

If the contractor fails to be on-site of an incident with appropriate staff and equipment within one hour of receiving a repair request, the department will assess the contractor $500 in liquidated damages for each 15-minute interval that the contractor is not present following the allotted one-hour response time. Increments of 15 minutes or less will be assessed as a 15-minute increment. The engineer, or designated representative, will be the sole authority in determining assessable 15-minute increments. Liquidated damages will be assessed under the administrative item Failing to Open Road to Traffic.

For contractor owned temporary barrier, repair work shall be completed according to standard spec 603 and 643, and as directed by the engineer. For temporary barrier left in place from a previous project, repair work is covered under article Maintain and Remove Concrete Barrier Temporary Precast of these special provisions.

Additional traffic control measures may be required depending on the severity and duration of the incident. The contractor shall provide any needed traffic control measures as directed by the department's representative.

D Measurement

The department will measure Emergency Response to Traffic Incident Involving Concrete Barrier Temporary as each individual response, 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.0060.0940	Emergency Response to Traffic Incident Involving Concrete Barrier Temporary	EACH

Payment is full compensation for providing a prompt staff response to an emergency repair request for a damaged crash cushion device located within the project limits.

The cost of providing the appropriate level of on-call staff for 24/7 incident response shall be included in the Mobilization bid item for this project.

The department will pay for any additional traffic control measures, if required, under the respective traffic control bid items in the contract.

183. Emergency Response to Traffic Incident Involving Crash Cushion, Item SPV.0060.0945.

A Description

This special provision describes providing prompt response to an emergency repair request involving a damaged crash cushion installed under this project that is displaced or damaged due to a vehicular collision during the time this contract is in effect.

B (Vacant)

C Construction

The contractor shall provide appropriate staff to the incident site within one hour of receiving a repair request from the responding agency. Staff deployed shall be capable of immediately assessing the severity of the damage to the device and consult with the department's representative on potential repair or replacement options and the projected timeline to restore the roadside device to its proper working condition. The contractor shall provide a time log of when the repair request was received and when staff arrived at the incident site. This information shall be submitted to the engineer, for verification, within

24 hours of the repair completion.

Contact information for the contractor's responsible party (the person or persons in charge of coordinating repair efforts) shall be submitted to the engineer at the pre-construction meeting. This person(s) shall be available 24/7 during the duration of this contract. The contact information for the department's representative will be supplied to the contractor at the pre-construction meeting.

If the contractor fails to be on-site of an incident with appropriate staff within one hour of receiving a repair request, the department will assess the contractor $500 in liquidated damages for each 15-minute interval that the contractor is not present following the allotted one-hour response time. Increments of

15 minutes or less will be assessed as a 15-minute increment. The engineer, or designated representative, will be the sole authority in determining assessable 15-minute increments. Liquidated damages will be assessed under the administrative item Failing to Open Road to Traffic.

Repair work shall be completed according to standard spec 614, and as directed by the engineer. Once repair work has been started, work shall continue until completion. Repair work shall be completed off the traveled way to the maximum extent allowable.

Additional traffic control measures may be required depending on the severity and duration of the incident. The contractor shall provide any needed traffic control measures as directed by the department's representative.

D Measurement

The department will measure Emergency Response to Traffic Incident Involving Crash Cushion as each individual response, 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.0060.0945	Emergency Response to Traffic Incident Involving Crash Cushion	EACH

Payment is full compensation for providing prompt response to an emergency repair request for damaged and/or dislodged temporary concrete barrier located within the project limits.

The cost of providing the appropriate level of on-call staff, equipment, and materials for 24/7 incident response shall be included in the Mobilization bid item for this project.

The department will pay for any additional traffic control measures, if required, under the respective traffic control bid items in the contract.

184. Temporary Concrete Barrier Gate 24-FT, Item SPV.0060.0950.

A Description

Furnish and install a Temporary Concrete Barrier Gate and remove upon completion.

B Materials

Furnish a Temporary Concrete Barrier Gate and all necessary hardware and materials to install the gate. The gate system shall be able to meet the recommended structural adequacy, occupant risk, and vehicle trajectory criteria set forth in the National Cooperative Highway Research Program Report (NCHRP) 350 for Test Level 3 for Longitudinal Barriers. The gate shall be capable of preventing vehicle penetration, vaulting, and underriding during Test Level 3 Length of Need with Transition (TL-3 LON/T) impacts and shall smoothly redirect the vehicle. The gate system shall be able to span a 24-foot minimum gap in concrete barrier. The gate system shall fasten only to the temporary concrete barrier wall. The gate system shall be able to be opened completely within 5 minutes once the moving process begins. The gate shall be able to be opened both by pivoting the gate on a hinge and by completely disconnecting the gate from the barrier wall and rolling it parallel to the temporary barrier wall. Tools and materials required to open the gate system must be physically fastened to, or stored within, the gate system in such a way that prevents such tools and materials from becoming hazards during a crash. Tools and material must be accessible and usable immediately upon need.

C Construction

Install the gate system according to manufacturer's recommendations at contract-identified locations or as the engineer directs. Move and reinstall the gate system as required for contract staging. Ensure that the gap between the traffic face of temporary barrier and the traffic face of the gate transition is to be less than ¼ of an inch. If manufacturer allows, the contractor may bolt thrie beam and thrie beam terminal connector to concrete barrier and the gate transition to bridge the gap in concrete barrier. Provide and maintain the gates throughout the duration of the project. Repair any damage to the gates within 48 hours. Once the gate is installed, a tutorial shall be given to WisDOT and law enforcement at a time determined by the engineer. Upon completion of the work, remove the gate system and properly dispose of all materials.

D Measurement

The department will measure Temporary Concrete Barrier Gate as each individual gate system, acceptably completed. The department will not make additional measurements for Temporary Concrete Barrier Gate if damaged during construction, including damage due to vehicular hits.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0950	Temporary Concrete Barrier Gate 24-FT	EACH

Payment is full compensation for providing, installing, maintaining, and removing the gate system; and for furnishing all documentation.

185. Install State Furnished Sign, Item SPV.0060.0955.

A Description

Work under this special provision shall comply with standard spec 638 as described for Erecting State Owned Signs, except as otherwise defined for this item.

B (Vacant)

C Construction

Erect state owned signs as described in standard spec 638.3.7. At the completion of the project, remove the signs and return them to the WisDOT Sign Shop. Contact Randy Hoyt 10 days in advance to arrange for delivery.

D Measurement

The department will measure Install State Furnished Sign by each individual sign location, acceptably installed 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.0060.0955	Install State Furnished Sign	EACH

Payment is full compensation for the work required under this item; picking up the sign, installing the sign, removing the sign, returning the sign to the WisDOT Sign Shop, and restoring the site. Payment does not include compensation for furnishing new wood posts, which are paid for under the pertinent contract bid item.

186. Poles Wood 60-FT, Item SPV.0060.1002.

A Description

This special provision describes furnishing and installing a 60 foot wood pole and other incidental items as required as shown on the plans, according to standard spec 651 and 657, 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 shaved the entire length and conforming to ANSI 05.1.

Wood poles 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 according to the pertinent provisions of standard spec 657.3.1.1 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 3 feet above grade level for splice, and incidentals as necessary.

D Measurement

The department will measure Poles Wood 60-FT for 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.0060.1002	Poles Wood 60-FT	EACH

Payment is full compensation for furnishing and installing a wood pole including grounding lugs and related mounting hardware, for hardware and fittings necessary to install the pole, for leveling shims, for corrosion prevention, and for all excavation and backfill.

187. Poles Wood 35-FT, Item SPV.0060.1003.

A Description

This special provision describes furnishing and installing a 35 foot wood pole and other incidental items as required as shown on the plans, according to standard spec 651 and 657, 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 shaved the entire length and conforming to ANSI 05.1.

Wood poles 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 according to the pertinent provisions of standard spec 657.3.1.1 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-FT for 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.0060.1003	Poles Wood 35-FT	EACH

Payment is full compensation for furnishing and installing a wood pole including grounding lugs and related mounting hardware, for hardware and fittings necessary to install the pole, for leveling shims, for corrosion prevention, and for all excavation and backfill.

188. Wood Pole Lighting 60-FT, Item SPV.0060.1004.

A Description

This special provision describes furnishing and installing a 60-foot wood pole, arm(s) and floodlight(s), junction box, grounding system, and a lightning protection system, as shown on the plans, according to standard spec 651, 657, 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 according 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 arm and luminaire for wood pole lighting units and temporary wood pole lighting units shall be per standard spec 657.2 and 659.2, respectively.

Floodlight mounting bracket arms for wood pole lighting units will be as shown on plan details. The floodlights are provided under separate bid item.

C Construction

This work shall be done according to the pertinent provisions of standard spec 651.3 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 spec 657.3 and 659.3.

D Measurement

The department will measure Wood Pole Lighting 60-FT 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.0060.1004	Wood Pole Lighting 60-FT	EACH

Payment is full compensation for providing and installing all material, and for all excavation and backfill.

189. Wood Pole Lighting 35-FT, Item SPV.0060.1005.

A Description

This special provision describes furnishing and installing a 35-foot wood pole, arm(s) and floodlight(s), junction box, grounding system, and a lightning protection system, as shown on the plans, according to standard spec 651, 657, 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 according 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 arm and luminaire for wood pole lighting units and temporary wood pole lighting units shall be per standard spec 657.2 and 659.2, respectively.

Floodlight mounting bracket arms for wood pole lighting units will be as shown on plan details. The floodlights are provided under separate bid item.

C Construction

This work shall be done according to the pertinent provisions of standard spec 651.3 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 spec 657.3 and 659.3.

D Measurement

The department will measure Wood Pole Lighting 35-Foot 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.0060.1005	Wood Pole Lighting 35-FT	EACH

Payment is full compensation for providing and installing all material, and for all excavation and backfill.

190. Concrete Bases Type B, Item SPV.0060.1006.

A Description

This special provision describes furnishing and installing Concrete Bases Type B as shown on the plans, according to standard spec 654 of the standard specs, and as hereinafter provided

B Materials

Materials shall conform to pertinent requirements of standard spec 654.2.

C Construction

Construction shall conform to pertinent requirements of standard spec 654.3.

D Measurement

The department will measure Concrete Bases Type B 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.0060.1006	Concrete Bases Type B	EACH

Payment shall be made as described in standard spec 654.5(2).

191. Concrete Bases Type C, Item SPV.0060.1007.

A Description

This special provision describes furnishing and installing Concrete Bases Type C as shown on the plans, according to standard spec 654, and as hereinafter provided

B Materials

Materials shall conform to pertinent requirements of standard spec 654.2.

C Construction

Construction shall conform to pertinent requirements of standard spec 654.3.

D Measurement

The department will measure Concrete Bases Type C 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.0060.1007	Concrete Bases Type C	EACH

Payment shall be made as described in standard spec 654.5(2).

192. Luminaires Utility HPS 400 Watts Floodlight, Item SPV.0060.1008.

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 according 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 according to standard spec 659.2.1, and 659.3.1, and wired and fused according 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. 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.0060.1008	Luminaires Utility HPS 400 Watts Floodlight.	EACH

Payment is full compensation for furnishing all the work and materials required under this bid item.

193. Luminaires Utility HPS 1000 Watts Floodlight, Item SPV.0060.1009.

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 suppling the power. Luminaires shall to be installed according 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-WW.

The following lighting control cabinets will supply 480V power to flood lights for temporary lighting: HL-40-UC; HL-40-NA; HL-40-BS.

The contractor shall install the luminaire on the light poles at locations specified in lighting plan and according to standard spec 659.2.1 and 659.3.1, wired and fused according 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.0060.1009	Luminaires Utility HPS 1000 Watts Floodlight.	EACH

Payment is full compensation for furnishing all the work and materials required under this bid item.

194. Removing Electrical Service Meter Breaker Pedestal, Item SPV.0060.2000.

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 away from the project area.

D Measurement

The department will measure Removing Electrical Service Meter Breaker Pedestal 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.0060.2000	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; and for furnishing all labor, tools, equipment, transportation, and incidentals necessary to complete the work.

195. Removing Controller Cabinet, Item SPV.0060.2001.

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 removed, salvaged, and stored.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2001	Removing Controller Cabinet	EACH

Payment is full compensation for removal and storage of the controller cabinet; disconnecting all associated wires and cables; for capping existing conduits, and for furnishing all labor, tools, equipment, transportation, and incidentals necessary to complete the work.

196. Removing Controller Cabinet Base, Item SPV.0060.2002.

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 according to the pertinent provisions of standard spec 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 according to the pertinent requirements of the standard specifications.

D Measurement

The department will measure Removing Controller Cabinet Base by the unit, removed from the ground, removed from the project site, and the disturbed area restored according to the contract.

E Payment

The department will pay for measured quantities at the contract unit price under the following item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2002	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; and for topsoil, fertilizer, seed and mulch.

197. Removing Microwave Detector, Item SPV.0060.2003.

A Description

This special provision describes removing an existing side-fire microwave vehicle detector from a pole or sign bridge.

B Materials

Existing side-fire microwave detector and cabling pig-tail.

C Construction

Coordinate removal of microwave detectors with the department's Statewide Traffic Operations Center (STOC) by proposing the removal schedule a minimum of 2-weeks prior to the scheduled removal. Call the STOC at (414) 227-2166 to schedule the removal.

Disconnect all cables and wiring that are mounted on or in the structure, and carefully remove the microwave detector. Salvage and store the microwave detector and pig-tail for pick up by the department.

D Measurement

The department will measure Remove Microwave Detector as a unit, removed from the concrete base, salvaged and stored, including attached hardware, according to the contract.

E Payment

The department will pay for measured quantities at the contract unit price under the following item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2003	Remove Microwave Detector	EACH

Payment is full compensation for disconnecting any necessary wiring; removing the poles and equipment mounted on the poles; storing the poles and any equipment attached to them; and transportation.

198. Removing Ramp Control Signal Assembly Sidemount, Item SPV.0060.2004.

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 according to the applicable requirements of standard spec 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 removed, salvaged, and stored.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2004	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; for any necessary restoration, including backfill, topsoil, and seeding; and transportation.

199. Removing Ramp Control Signal Assembly Overhead, Item SPV.0060.2005.

A Description

This special provision describes removing an existing overhead ramp control signal assembly.

B Materials

Materials included in overhead ramp control signal assemblies are:

1. Vehicular traffic signal heads.
2. Signal mounting brackets.
3. Sign mounting brackets.

C Construction

Remove overhead 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 according to the applicable requirements of standard spec 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 Overhead by the unit, acceptably removed, salvaged, and stored.

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	Removing Ramp Control Signal Assembly Overhead	EACH

Payment is full compensation for removal and storage of the ramp control signal assembly; disconnecting all wiring connections; removing all conduit connections; for any necessary restoration, including backfill, topsoil, and seeding; and transportation.

200. Removing Temporary Vehicle Detector Assembly, Item SPV.0060.2006.

A Description

This special provision describes removing 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 will include materials to be salvaged for the department and materials to revert to the contractor be disposed of as determined by the contractor.

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 revert to the contractor or be disposed of 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. Be careful not to damage any of the components to be salvaged for the department.

Salvage the materials described above for pick up by the department.

Dispose non-reusable materials appropriately away from the project site.

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 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.0060.2006	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.

201. Salvage Solar Powered HAR Sign Assembly, Item SPV.0060.2008.

A Description

Remove and salvage solar powered advance flasher assemblies at the locations shown on the plan and as directed by the engineer. Disconnect all wiring in the control cabinet as necessary according to standard spec 676.

B Materials

Materials in this work are a combination of salvaged for later reinstallation, disposed of properly away from the project, and new contractor furnished materials.

All materials furnished by the contractor must meet all pertinent requirements of the standard specifications.

Materials to be salvaged and stored for reinstallation include:

- Solar power panels;
- Solar power controller;
- Batteries and battery cabinet;
- Flasher controller;
- Yellow flashing beacon traffic signals;

Materials to be disposed of by the contractor include:

- Conduit;
- Wiring from solar power system to flashing beacons;
- Mounting hardware;

Materials to be furnished by the contractor include:

- Metallic conduit;
- Wiring from solar power system to flashing beacons;
- Mounting hardware.

C Construction

Do not begin any salvage or removal work until directed or approved by the engineer.

Coordinate this work with other work in the project to minimize the time that no HAR sign flasher is functional.

Inspect the existing assemblies for damage and defects with the engineer prior to beginning any removal work. Note any damage or defect. Any damage or defect discovered after work has begun will be

assumed to be cause by the contractor and will be remedied by the contractor with no additional payment.

Disconnect, or otherwise de-energize, the wiring from the solar power system to the existing advance flasher assemblies so that the existing system may be salvaged safely.

Remove the materials from the existing sign assembly.

Safely store salvaged materials until reinstalled.

D Measurement

The department will measure Salvage Solar HAR Sign Assembly by the unit, acceptably removed and stored for reinstallation.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2008	Salvage Solar Powered HAR Sign Assembly	EACH

Payment is full compensation for removing and salvaging flasher assemblies and solar power system; for disconnecting wiring as necessary in the controller cabinet; for removal of materials; for storing materials for later reinstallation; and for properly disposing of unused materials.

202. Speed Warning Sign System, Item SPV.0060.2009.

A Description

This special provision describes furnishing and installing speed warning system consisting of a non-intrusive to pavement vehicle speed sensor, electronic blank out message sign and any interface system needed between the sensor and sign to activate the sign.

B Materials

Provide electronic LED blank-out sign, vehicle speed sensor, and wiring and mounting hardware to make the system functional.

Provide an electronic LED blank-out sign meeting the following requirements:

- Operating temperature range of between -40º and +160º F;
- Operating humidity range of between 10% and 90%;
- Meets all applicable FCC regulations for radio interference and conducted line noise;
- Operates properly with no interference from any device meeting FCC regulations;
- LEDs shall be amber;
- LEDs shall have a 100,000 hour rated life;
- LEDs shall have a minimum viewing angle of 60º, both horizontally and vertically;
- Spacing between LEDs shall appear to be uniform;
- Provide a power supply to convert 120VAC to the proper voltage to operate the sign;
- Sign housing shall be weatherproof aluminum with TIG welded seems;
- Sign shall include a door or means on access to the components of the sign;
- Hinge, fasteners, and all mounting hardware shall be stainless steel;
- Sign shall include an automated dimming system with photocell;
- When deactivated, the sign shall not be legible;
- The door shall be sealed with a neoprene gasket;
- The sign shall be sized for the following message at “X”-inch, Type “X” text as show on the plans.

TOO FAST
FOR CURVE

Provide a vehicle speed sensor meeting the following requirements:

- 300-foot detection range;
- User selectable speed trigger threshold;
- Power consumption less than 0.5W;
- FCC approved and operable with other FCC approved devices;
- Configurable RS-232 port for settings modification;
- Rotary switch or thumbwheel for speed threshold;
- No more than 3-inches in any dimension;
- Provisions for field update of firmware;
- Must include a self-test system;
- Must include any necessary power supply or adapter to make operational with 120VAC power supply;
- Operating temperature range of between -40º and +160º F;
- Operating humidity range of between 10% and 90%.

Provide any cabling and connectors, and, if necessary, any adapters or translators from the speed sensor to the sign activation to make the system functional.

C Construction

Install the speed sensor and sign system on a pole with a static sign (pole and static sign paid for separately) as show on the plans or as directed by the engineer.

Connect the speed sensor to the sign as appropriate per both manufacturers' instructions and set the speed threshold per direction from the engineer.

Test the system and adjust as necessary.

D Measurement

The department will measure Speed Warning Sign System a 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.0060.2009	Speed Warning Sign System	EACH

Payment is full compensation for testing and installing the speed sensor and sign system; and for metallic conduit, mounting hardware, and transportation.

203. Temporary Poles Wood 40-Foot, Item SPV.0060.2010; Temporary Poles Wood 60-Foot, Item SPV.0060.2011.

A Description

This special provision describes furnishing and installing Class 4wood poles for use during the duration of the contract.

B Materials

Furnish wood poles that are Class 4 or larger with a minimum overall length. The poles shall be western red cedar according 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 under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2010	Temporary Poles Wood 40-Foot	EACH
SPV.0060.2011	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.

204. 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. Assembly will be done on a 40-foot wood pole provided under other pay items in the contract. 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

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.

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. The brackets shall be attached 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 Temporary Vehicle Detector Assembly as each individual unit consisting of one detector and one 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 under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2012	Temporary Vehicle Detector Assembly	EACH

Payment is full compensation for providing the contractor furnished materials, assembling the state-furnished and contractor furnished materials, installing the assembly, calibrating the detector, connecting the detector to the modem, integrating it into the existing FTMS system, making the assembly functional, and transportation.

205. Ground Rod, Item SPV.0060.2013.

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 six 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 under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2013	Ground Rod	EACH

Payment is full compensation for installation of the ground rod and ground wire; and welding and connections at both ends of the ground wire.

206. Relocating Temporary Vehicle Detector Assembly, Item SPV.0060.2014.

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 type 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

As directed by the engineer, remove the temporary vehicle detector assemblies from their respective locations in the project. Be careful not to 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 as required in 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. The brackets shall be attached 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 a unit consisting of one or more RTMS detectors, one or more solar power systems, and a wood pole, with each assembly removed, installed, focused on initial traffic lane configuration, functioning, and accepted according 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.0060.2014	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 all restoration work needed at the original or new location.

207. Refocus Vehicle Detector Assembly, Item SPV.0060.2015.

A Description

This special provision describes refocusing an existing microwave detector, or detectors, on a pole or other structure, for operation with a new lane configuration.

B Materials

Materials include Electronic Integrated Systems, Inc. (EIS) Remote Traffic Microwave Sensors (RTMS) and the respective poles they have been mounted on.

C Construction

Coordinate all planned down-time of vehicle detector assemblies 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.

Refocus and recalibrate the detector each time the adjacent traffic pattern is changed due to a change in traffic control or construction staging.

Verify to the satisfaction of the engineer that the existing detector assembly is working properly. Inspect the vehicle detector assembly for damage.

D Measurement

The department will measure Refocus Vehicle Detector Assembly by the unit, acceptably refocused and operational.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2015	Refocus Vehicle Detector Assembly	EACH

Payment is full compensation for making the detector fully operational with a new lane configuration.

208. Remove Pole, Item SPV.0060.2016.

A Description

This special provision describes removing an existing Type 2, 3, 4, 5, 6, or 7 pole.

B Materials

Existing poles, including antennae, conduit and cabling, and any other equipment mounted to the poles.

C Construction

Disconnect all cables and wiring that are mounted on or in the poles, and carefully remove the pole from the concrete footing. Salvage and store all hardware for pick up by the department. Dispose of the pole and any conduit and cabling appropriately away from the project area.

D Measurement

The department will measure Remove Pole as a unit, removed from the concrete base, salvaged and stored, including attached hardware, according to the contract.

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	Remove Pole	EACH

Payment is full compensation for disconnecting any necessary wiring; removing the poles and equipment mounted on the poles; storing the poles and any equipment attached to them; and for furnishing all labor, tools, equipment, transportation, and any other incidentals necessary to complete the contract work.

209. Install Temporary Traffic Camera Assembly, Item SPV.0060.2017.

A Description

This special provision describes assembling, installing and integrating a temporary traffic monitoring camera assembly into the existing system according 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
- (2) 900 MHz ethernet bridge radios and the associated cabling.

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 60-Foot wood pole 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 (-).

Install one ethernet bridge radio on the temporary camera assembly site and the other ethernet radio bridge on an existing permanent installation as shown on the plans and as directed by the engineer. Integrate the ethernet radio bridges together, and into the existing communications network.

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 under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2017	Install Temporary Traffic Camera Assembly	EACH

Payment for Temporary Traffic Camera Assembly is full compensation for installing department-furnished camera assemblies, ethernet radio bridges, 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 all conduit, hardware and connections.

210. Install Salvaged Solar Powered HAR Sign Assembly, Item SPV.0060.2018.

A Description

This special provision describes installing a previously salvaged solar powered Highway Advisory Radio sign assembly on a new sign and sign supports (paid for separately).

B Materials

Materials will include a combination of salvaged and contractor furnished items.

Salvaged materials will include yellow traffic signal flashing beacons, mounting hardware, HAR flasher assembly controller, solar panels, solar power system controller, batteries, mounting hardware, and solar power system cabinet.

Contractor furnished materials will include rigid metallic conduit, condulets, fittings, and wiring between flashing beacons. Contractor furnished materials must meet all pertinent sections of the standard provisions.

C Construction

Do not begin any salvage or removal work until directed or approved by the engineer.

Coordinate this work with other work in the contract to minimize the time between removing and salvaging the existing flasher assembly and installing the new flasher assembly.

Install the salvaged HAR flasher assembly controller on the new sign structure as shown in the plans or as directed by the engineer.

Mount the traffic signal flashing beacons on the sign supports similar to prior to salvaging. Install the metallic conduit on the sign support from the adjacent pull box and between the flashing beacons. Connect the flashing beacons with wire sized appropriately for the flashing beacons.

D Measurement

The department will measure Install Salvaged Solar Powered HAR Sign Flasher Assembly by the unit, acceptably reinstalled and made operational.

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 Salvaged Solar Powered HAR Sign Assembly	EACH

Payment is full compensation for installing flasher assemblies; for connecting wiring as necessary in the controller cabinet; for furnishing and installing metallic conduit and wiring; for making the assembly operational; and for all labor, tools, equipment, and transportation necessary to complete the work.

211. Remove Temporary Traffic Camera Assembly, Item SPV.0060.2019.

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 will include materials to be salvaged for the department and materials to revert to the contractor be disposed of as determined by the contractor.

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 revert to the contractor or be disposed of 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. Be careful not to damage any of the components to be salvaged for the department.

Salvage the materials described above for pick up by the department.

Dispose of non-reusable materials away from the project site.

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 Remove Temporary Traffic Camera Assembly as each individual unit consisting of one CCTV camera and one CCTV camera solar power assembly, acceptably removed with the appropriate materials salvaged for pick up 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.0060.2019	Remove 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.

212. Signal Assembly Ramp Control Sidemount, Item SPV.0060.2020.

A Description

This special provision describes providing and installing sidemount traffic signal assemblies for use with ramp meters, including the pedestal base, traffic signal standard, traffic signal heads, traffic signal mounting brackets, sign mounting brackets, and wiring within the assembly.

B Materials

Provide pedestal bases that meet the requirements of standard spec 657.2.6.

Provide traffic signal standards that meet the requirements of standard spec 657.2.5.

Provide one three-section 12-inch face traffic signal head and one two-section 12-inch face traffic signal head that meet the requirements of standard spec 658.

Provide traffic signal mounting hardware that meets the requirements of standard spec 658.

Provide sign mounting brackets that meet the requirements of standard spec 637.2.4

Provide wiring within the assembly and from the signal heads to the pedestal base that meets the requirements of standard spec 655.2.2.

C Construction

Perform work conforming to standard spec 637, 657, and 658 and the WSEC, and as the plans show.

Ensure that the positioning, mounting height, and lateral placement of signal heads are according to the MUTCD. The contractor may be required to revisit locations to re-adjust the signal heads once the engineer observes the metering operation of the ramp.

For traffic signal cable that extends from the signal base to the terminal strips in the signal heads, provide the number of conductors as the plans show. Match the color of the conductor to the lens color.

Install conductors in continuous lengths without splices from terminal to terminal. Splice only at hand holes at the bases of the standards or poles. Do not splice in underground pull boxes or conduit.

Group and identify sets of conductors in signal cables, 3 each per signal phase, whether insulated with red, yellow, green, or other colors, at each pertinent termination. Use conductors colored to match lens colors first. The engineer shall approve the method of identification. Furnish 2 as-built cable layout drawings with labeling to the engineer upon completion of the work. Place one of those copies in the cabinet.

Connect the white 14 AWG wires to a 10 AWG current carrying neutral. Make the connection with a wire-nut. Extend the 10 AWG wire from the current carrying neutral grounding strip in the ramp meter processor assembly cabinet, being installed from base to base to the far end of each signal conduit run.

Furnish the 10 AWG USE XLP current carrying grounded conductor in white colored insulation.

Furnish the 10 AWG USE XLP equipment-grounding wire in green colored insulation.

Furnish equipment and appliances necessary to test the complete installation of the ramp meter control signal assembly, including electrical conductors.

D Measurement

The department will measure Signal Assembly Ramp Control Sidemount 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.0060.2020	Signal Assembly Ramp Control Sidemount	EACH

Payment is full compensation for providing and installing traffic signal standards, pedestal bases, signal heads, signal mounting brackets, cabling within the assembly, and the sign support system; for providing electrical connections and grounding; and for testing.

213. Signal Assembly Ramp Control Overhead, Item SPV.0060.2021.

A Description

This special provision describes providing and installing overhead traffic signal assemblies for use with ramp meters, including, traffic signal heads, traffic signal mounting brackets, sign mounting brackets, and wiring within the respective overhead sign support.

B Materials

Provide one three-section 12-inch face traffic signal head that meets the requirements of standard spec 658.

Provide traffic signal mounting hardware that meets the requirements of standard spec 658.

Provide sign mounting brackets that meet the requirements of standard spec 637.2.4.

Provide wiring within the overhead sign support that meets the requirements of standard spec 655.2.2.

C Construction

Perform work conforming to standard spec 637 and 658 and the WSEC, and as the plans show.

Ensure that the positioning, mounting height, and lateral placement of signal heads are according to the MUTCD. For overhead signals, provide a clearance from the pavement surface of the roadway to the lowest part of the mast arm, or the lowest part of any object mounted on the mast arm, between 17 feet and 19 feet. The contractor may be required to revisit locations to re-adjust the signal heads once the engineer observes the metering operation of the ramp.

For traffic signal cable that extends from the signal base to the terminal strips in the signal heads, provide the number of conductors as the plans show. Match the color of the conductor to the lens color.

Install conductors in continuous lengths without splices from terminal to terminal. Splice only at hand holes at the bases of the standards or poles. Do not splice in underground pull boxes or conduit.

Group and identify sets of conductors in signal cables, 3 each per signal phase, whether insulated with red, yellow, green, or other colors, at each pertinent termination. Use conductors colored to match lens colors first. The engineer shall approve the method of identification. Furnish 2 as-built cable layout drawings with labeling to the engineer upon completion of the work. Place one of those copies in the cabinet.

Connect the white 14 AWG wires to a 10 AWG current carrying neutral. Make the connection with a wire-nut. Extend the 10 AWG wire from the current carrying neutral grounding strip in the ramp meter processor assembly cabinet, being installed from base to base to the far end of each signal conduit run.

Furnish the 10 AWG USE XLP current carrying grounded conductor in white colored insulation.

Furnish the 10 AWG USE XLP equipment-grounding wire in green colored insulation.

Furnish equipment and appliances necessary to test the complete installation of the ramp meter control signal assembly, including electrical conductors.

D Measurement

The department will measure Signal Assembly Ramp Control Overhead 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.0060.2021	Signal Assembly Ramp Control Overhead	EACH

Payment is full compensation for providing and installing, signal heads, signal mounting brackets, cabling within the overhead sign support, and the sign support system; for providing electrical connections and grounding; and for testing.

214. Signal Assembly Advance Flasher Type 1, Item SPV.0060.2022.

A Description

This special provision describes providing and installing type 1 advance flasher traffic signal assemblies for use with ramp meters, including the pedestal base, traffic signal standard, traffic signal heads, traffic signal mounting brackets, sign mounting brackets, and wiring within the assembly.

B Materials

Provide pedestal bases that meet the requirements of standard spec 657.2.6.

Provide traffic signal standards that meet the requirements of standard spec 657.2.5.

Provide two single-section 12-inch yellow face traffic signal heads meet the requirements of standard spec 658.

Provide traffic signal mounting hardware that meets the requirements of standard spec 658.

Provide sign mounting brackets that meet the requirements of standard spec 637.2.4.

Provide wiring within the assembly and from the signal heads to the pedestal base that meets the requirements of standard spec 655.2.2.

C Construction

Perform work conforming to standard spec 637, 657, and 658 and the WSEC, and as the plans show.

Ensure that the positioning, mounting height, and lateral placement of signal heads are according to the MUTCD. The contractor may be required to revisit locations to re-adjust the signal heads once the engineer observes the metering operation of the ramp.

For traffic signal cable that extends from the signal base to the terminal strips in the signal heads, provide the number of conductors as the plans show. Match the color of the conductor to the lens color.

Install conductors in continuous lengths without splices from terminal to terminal. Splice only at hand holes at the bases of the standards or poles. Do not splice in underground pull boxes or conduit.

Group and identify sets of conductors in signal cables, 3 each per signal phase, whether insulated with red, yellow, green, or other colors, at each pertinent termination. Use conductors colored to match lens colors first. The engineer shall approve the method of identification. Furnish 2 as-built cable layout drawings with labeling to the engineer upon completion of the work. Place one of those copies in the cabinet.

Connect the white 14 AWG wires to a 10 AWG current carrying neutral. Make the connection with a wire-nut. Extend the 10 AWG wire from the current carrying neutral grounding strip in the ramp meter processor assembly cabinet, being installed from base to base to the far end of each signal conduit run.

Furnish the 10 AWG USE XLP current carrying grounded conductor in white colored insulation.

Furnish the 10 AWG USE XLP equipment-grounding wire in green colored insulation.

Furnish equipment and appliances necessary to test the complete installation of the ramp meter control signal assembly, including electrical conductors.

D Measurement

The department will measure Signal Assembly Advance Flasher Type 1 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.0060.2022	Signal Assembly Advance Flasher Type 1	EACH

Payment is full compensation for providing and installing traffic signal standards, pedestal bases, signal heads, signal mounting brackets, cabling within the assembly, and the sign support system; for providing electrical connections and grounding; and for testing.

215. Type 9 & 10 Special Traffic Signal Base, Item SPV.0060.3001.

A Description

This special provision describes constructing concrete bases for Type 9 &10 Special Traffic Signal Base conforming to standard spec 654, construction detail shown in the plans.

B Materials

Materials shall be according to standard spec 654.

C Construction

Construction shall be according to standard spec 654.

D Measurement

The department will measure Type 9 &10 Special Traffic Signal Base at the contract unit price, 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	Type 9 & 10 Special Traffic Signal Base	EACH

Payment is full compensation for providing concrete bases; for embedded conduit and electrical components; for anchor templates, rods, nuts, and washers; for bar steel reinforcement; and for excavating, backfilling, and disposing of surplus materials.

216. Transport and Install Poles Type 9 Special, Item SPV.0060.3002; Transport and Install Poles Type 10, Item SPV.0060.3003; Transport and Install Poles Type 10 Special, Item SPV.0060.3004; Transport and Install Monotube Arms 15-FT, Item SPV.0060.3005; Transport and Install Monotube Arms 20-FT, Item SPV.0060.3006; Transport and Install Monotube Arms 25-FT, Item SPV.0060.3007; Transport and Install Monotube Arms 30-FT, Item SPV.0060.3008; Transport and Install Monotube Arms 35-FT, Item SPV.0060.3009; Transport and Install Monotube Arms 40-FT, Item SPV.0060.3010; Transport and Install Luminaire Arms Steel 8-FT, Item SPV.0060.3011; Transport and Install Luminaire Arms Steel 15-FT, Item SPV.0060.3012.

A Description

This special provision describes transporting and installing state furnished materials conforming to standard spec 657, details shown in the plans, and as modified in this special provision.

B Materials

The department will furnish the monotube poles, monotube arms and luminaire arms.

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 five (5) working days prior to picking the materials up.

Provide all other needed materials in conformance with standard spec 651.2, 652.2, 653.2, 654.2, 655.2, 656.2, 657.2, 658.2 and 659.2.

C Construction

Perform work according to standard spec 651.3, 652.3, 653.3, 654.3, 655.3, 656.3, 657.3, 658.3 and 659.3.

D Measurement

The department will measure Transport and Install [Equipment] at the contract unit price, 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.0060.3002	Transport and Install Poles Type 9 Special	Each
SPV.0060.3003	Transport and Install Poles Type 10	Each
SPV.0060.3004	Transport and Install Poles Type 10 Special	Each
SPV.0060.3005	Transport and Install Monotube Arms 15-FT	Each
SPV.0060.3006	Transport and Install Monotube Arms 20-FT	Each
SPV.0060.3007	Transport and Install Monotube Arms 25-FT	Each
SPV.0060.3008	Transport and Install Monotube Arms 30-FT	Each
SPV.0060.3009	Transport and Install Monotube Arms 35-FT	Each
SPV.0060.3010	Transport and Install Monotube Arms 40-FT	Each
SPV.0060.3011	Transport and Install Luminaire Arms 8-FT	Each
SPV.0060.3012	Transport and Install Luminaire Arms 15-FT	Each

Payment is full compensation for transporting and installing all materials, including all associated hardware, fittings, mounting devices, and attachments necessary to completely install the pole and arms.

217. Covering Existing Traffic Signal Faces, Item SPV.0060.3013.

A Description

This special provision describes covering existing traffic signal heads during construction. The left-turn traffic signal faces at the IH 41 NB On-Ramp and W. North Avenue intersection shall be covered upon left-turn phase deactivation.

B Materials

Hood materials shall be burlap, canvas, nylon or other materials approved by the engineer. Plastic trash bags or similar materials are not acceptable. The hood shall be black to match the existing traffic signal backplates. The hood shall cover the entire face of the traffic signal head to the rim of the backplate. The hoods must not damage the existing traffic signal heads or backplates.

The hoods must be securely fastened to the existing traffic signal head with nylon rope, straps or other materials approved by the engineer. Tape or similar materials are not acceptable. The straps must not damage the existing traffic signal heads or backplates.

C Construction

Notify the department's Electrical Field Unit at (414) 266-1170 and City of Wauwatosa Public Works Department at (414) 471-8422 at least five working days prior to the deactivation of the left-turn traffic signal faces at the IH 41 NB On-Ramp and W. North Avenue intersection.

Hood the existing traffic signal faces immediately upon the deactivation of the left-turn phase. Cover the entire face of the signal head to the rim of the backplate with the approved cover materials. Securely fasten the hood to the existing traffic signal head with the approved materials. Ensure that the traffic signal indications are not visible.

The hoods must be maintained until the traffic signal is removed.

D Measurement

The department will measure Covering Existing Traffic Signal Faces bid items as each hood, 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.0060.3013	Covering Existing Traffic Signal Faces	EACH

Payment is full compensation for furnishing and installing all required traffic signal hoods, materials, and supplies; for maintaining the traffic signal hoods; for removing the traffic signal hoods; and for cleaning up and properly disposing of waste.

218. Removing Monotube Concrete Bases, Item SPV.0060.3101.

A Description

This special provision describes removing and disposing of existing monotube traffic signal concrete bases.

B (Vacant)

C Construction

Construction shall be according to standard spec 204.3.

At locations of concrete bases where complete removal of the base will impact construction of new monotube concrete bases and location of existing monotube does not interfere with construction of new monotube, break down and remove the concrete material to a depth of 2' below grade. Fill the area to grade with similar material as adjacent to the base (topsoil/seed, concrete sidewalk, asphalt, etc).

If the location of the existing monotube interferes with the construction of new monotube then remove the entire monotube concrete base per standard spec 204.3.

D Measurement

The department will measure Removing Monotube Concrete Bases at the contract unit price, 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.0060.3101	Removing Monotube Concrete Bases	EACH

Payment is full compensation for breaking down and removing; for hauling and disposing of materials; for restoring the roadway cross-section; and for backfilling.

219. Traffic Signal Controller Programming, Item SPV.0060.3102.

A Description

This special provision describes the required traffic signal controller programming necessary to update the intersection phasing and timing. Specific timing plans will be provided by the City of Wauwatosa.

B (Vacant)

C Construction

Input traffic signal timings into the new traffic signal controller as directed by the City of Wauwatosa to allow the traffic signal to operate according to the sequence of operations.

Allow the City of Wauwatosa and/or its representatives to review the operation of the controller prior to installation at the job site. Provide guidance as needed on special programming features based on the sequence of operations to maintain proper operation.

D Measurement

The department will measure Traffic Signal Controller Programming at the contract unit price, 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.0060.3102	Traffic Signal Controller Programming	EACH

Payment is full compensation for controller programming and timing modifications required to accommodate fully functional traffic signal operation as shown in the sequence of operations plan.

220. EVP Detector Type I, Item SPV.0060.3103.

A Description

This work shall consist of furnishing and installing EVP Detector Type I as shown on the plans and as hereinafter provided.

B Materials

The infrared EVP Detector Type I shall be lightweight, weatherproof device capable of sensing and transforming pulsed infrared energy into electrical signals for use by the signal discrimination equipment. The infrared EVP Detector Type I shall be designed for mounting at or near an intersection on mast arms, pedestals or pipes. Each infrared EVP Detector Type I shall be supplied with mounting hardware to accommodate installation on mast arms, poles, or traffic signal standards as shown in the plans. The EVP Detector Type I shall accept infrared signals from one direction and shall provide a single electrical output signal. The EVP Detector Type I shall have a built-in terminal block to simplify wiring connections. The infrared EVP Detector Type I shall receive power from the discriminator and shall have internal voltage regulation to operate from 18 to 37 volts DC. The infrared EVP Detector Type I shall respond to clear lens code secured emitter with 0.84 (+/- 10%) Joules of energy output per flash at a distance of 2,500 feet under clear atmospheric conditions. If the emitter is configured with a visible light filter, the EVP Detector Type I shall respond at a distance of 1,800 feet under clear atmospheric conditions. The noted distances shall be comparable day and night. The infrared detector shall produce an electrical signal to the discriminator via a detector cable up to 1,000 feet in length.

The EVP Detector Type I shall be a GTT Opticom Model #711 or approved equal.

C Construction

Furnish and install EVP Detector Type I for traffic signals. Set the initial aim angle at a distance of 1,800 feet from the stop bar or as specified by the engineer. Final adjustment shall be under the direction of the engineer.

D Measurement

The department will measure EVP Detector Type I at the contract unit price, 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.0060.3103	EVP Detector Type I	EACH

Payment shall be full compensation for furnishing and installing the EVP Detector Type I on signal poles or mast arms as shown on the plans, including extensions to poles if required; and for aiming the detector.

221. EVP Discriminator Type IV, Item SPV.0060.3104.

A Description

This work shall consist of furnishing and installing an EVP Discriminator Type IV in the control cabinet as shown on the plans and as hereinafter provided.

B Materials

The EVP Discriminator Type IV shall be a plug-in, four channel, multiple priority device intended to be installed directly, into a rack located within the controller cabinet. The EVP Discriminator Type IV card edge connector shall include primary infrared detector inputs and power outputs. Two additional detector inputs per channel shall be provided on a front panel connector. An auxiliary function harness (#757) shall be included. The EVP Discriminator Type IV shall be powered from 115 volt (95 volts AC to 135 volts AC), 60 Hz mains and shall contain an internal, regulated power supply that supports up to four infrared detectors. The EVP Discriminator Type IV shall include several control timers that shall limit or modify the duration of a priority control condition and programmable security via jumper selection. The control timers shall be as follows:

- MAX CALL TIME: Shall set the maximum time a channel is allowed to be active. It can be set to 120, 240, or 65,535 seconds. Its factory default must be the maximum time.
- CALL HOLD TIME: Shall set the time a call is held on a channel after the priority signal is no longer being received. It can be set to either 6 or 12 seconds via jumper selects. Its factory default mist be six seconds.
- SECURITY ENCODED DATA: Shall require that an infrared signal contain an embedded vehicle ID code to be recognized as a valid request. The default jumper selection shall disable this requirement.

The EVP Discriminator Type IV default range values shall be re-settable by the operator using switches located on its front. The EVP Discriminator Type IV shall be capable of three levels of discrimination of security encoded infrared signals, as follows:

- Verification of the presence of the base infrared of either 14.03509 Hz +/- 0.01773 Hz for Command priority, or 9.63855 Hz +/- 0.00836 Hz for Advantage priority.
- Determination of when the vehicle is within the prescribed range.
- The EVP Discriminator Type IV card edge connector shall include primary infrared detector inputs and power outputs. The EVP Discriminator Type IV shall include one optoisolated NPN output per channel that provides the following electrical signal to the appropriate pin on the card edge connector:
- Hz +/- 0.1 Hz 50% on/duty square wave in response to an Advantage priority call.
- A steady ON in response to a Command priority call.

The EVP Discriminator Type IV shall accommodate two methods for setting intensity thresholds (emitter range) for high and low priority signals:

- Using an encoded emitter with range-setting capability.
- Using an encoded emitter while manipulating the front panel switches.

The EVP Discriminator Type IV shall have a solid state POWER ON LED indicator that flashes to indicate unit diagnostic mode and illuminates steadily to indicate proper operation. The EVP Discriminator Type IV shall have internal diagnostics to test for proper operation. If a fault is detected, the discriminator shall use the front panel LED indicators to display fault information. The EVP Discriminator Type IV shall have a Command (high) and Advantage (low) solid state LED indicator for each channel to display active calls. The EVP Discriminator Type IV shall have a test switch for each channel to test proper operation of Command or

Advantage priority. The EVP Discriminator Type IV shall properly identify a Command priority call with the presence of 10 Advantage priority code secured emitter signals being received simultaneously on the same channel. The EVP Discriminator Type IV shall have write-on pads to allow identification of the phase and channel. The EVP Discriminator Type IV shall have the capability of functionally testing connected detector circuits and indicating via front panel LEDs non-functional detector circuits. An auxiliary interface panel shall be available to facilitate interconnections between the discriminator and traffic cabinet wiring.

Additional wiring harnesses may be required for auxiliary detector heads as shown on the plans.

The EVP Discriminator Type IV shall be a GTT Opticom Model #764, or approved equal.

C Construction

Furnish and install EVP Discriminator Type IV for traffic signals.

D Measurement

The department will measure EVP Discriminator Type IV at the contract unit price, 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.0060.3104	EVP Discriminator Type IV	EACH

Payment shall be full compensation for furnishing and installing the EVP Discriminator Type IV in the control cabinets and any additional wiring harnesses required for auxiliary heads.

222. EVP Confirmation Light Assembly Type I, Item SPV.0060.3105.

A Description

This work shall consist of furnishing and installing EVP Confirmation Light Assemblies, Type I as shown on the plans and as hereinafter provided.

B Materials

EVP Confirmation Light Assembly, Type I, shall consist of weatherproof, aluminum lamp holder with a single LED lamp as shown on the plans. In addition, mounting materials shall be provided as shown on the plans.

The EVP Confirmation Light Assembly Type I shall be a GTT Opticom Model #575 or approved equal.

C Construction

Furnish and install EVP Confirmation Light Assembly Type I for traffic signals.

D Measurement

The department will measure EVP Confirmation Light Assembly Type I at the contract unit price, 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.0060.3105	EVP Confirmation Light Assembly Type I	EACH

Payment shall be full compensation for furnishing and installing the EVP Confirmation Light Assembly Type I.

223. Concrete Control Cabinet Bases Type 9 Special Super P, Item SPV.0060.3106.

A Description

Work under this specification shall be done according to standard spec 654, contract plan detail, and these special provisions.

B Materials

Materials shall be according to standard spec 654.

C Construction

Construction shall be according to standard spec 654.

D Measurement

The department will measure Concrete Control Cabinet Bases Type 9 Special Super P bid items 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.0060.3106	Concrete Control Cabinet Bases Type 9 Special Super P	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.

224. Pile Dynamic Analyzer (PDA) Testing, Item SPV.0060.4008; Pile Dynamic Analyzer (PDA) Restrikes, Item SPV.0060.4028; CAse Pile Wave Analysis Program (CAP/WAP) Evaluation, Item SPV.0060.4048.

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 capacity criteria. Production piles will be driven according to pile capacity 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, and the UPRR engineer if applicable.

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, and the UPRR engineer if applicable 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 3 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 4 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, and the UPRR engineer if applicable. 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, and the UPRR engineer if applicable.

C.3 Pile Driving

Drive PDA Test Piles to penetration depths and/or penetration capacities as directed by the engineer, and the UPRR engineer if applicable. 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 capacity 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 capacity is achieved.
- If PDA indicated pile capacity is greater than or equal to 85% of the required driving capacity, 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 capacity is achieved.
- If the pile capacity at plan length is less than 85% of the required driving capacity, continue to drive the pile until the capacity reaches 85% or more of the plan driving capacity. 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 capacity is achieved.

In all cases, the required plan driving capacity 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, and the UPRR engineer if applicable, 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 72 hours or a time period as directed by the engineer, and the UPRR engineer if applicable, 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, and the UPRR engineer if applicable.

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 capacity 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 capacity and the driving criteria for the production piles determined by dynamic pile testing to the engineer, and the UPRR engineer if applicable 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, and the UPRR engineer if applicable.

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 according to the established criteria for that unit.

Driving production piles shall continue until the required driving capacity is achieved for 30 consecutive hammer blows. Mark penetration per 10 consecutive hammer blows.

The engineer, or the UPRR engineer if applicable 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, or the UPRR engineer if applicable 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.0060.4008	Pile Dynamic Analyzer (PDA)Testing	EACH
SPV.0060.4028	Pile Dynamic Analyzer (PDA) Restrikes	EACH
SPV.0060.4048	CAse Pile Wave Analysis Program (CAP/WAP) 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.

225. Bearing Pads Elastomeric Special Temporary, Item SPV.0060.4068.

A Description

Furnish, fabricate, store, transport to the project site, and install bearings according to the details shown on the plans, standard spec 506, and as hereinafter provided.

B Materials

The elastomer shall be manufactured from polyurethane (80 durometer), as specified in Part 10, Chapter 15, Volume 2 of the current AREMA Specifications.

C Construction

The elastomer shall be bonded to an external steel load plate as shown on the drawings.

D Measurement

The department will measure Bearing Pads Elastomeric Special Temporary bid item by the individual bearing, acceptably completed according to standard spec 506.4.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.4068	Bearing Pads Elastomeric Special Temporary	EACH

Payment is full compensation for fabricating the bearings including bearing pad, plate and anchor bolts; storing, and transporting the bearing assemblies to the project site; and submitting samples and materials certifications.

226. Bearings High-Load Multi-Rotational Guided, Item SPV.0060.4080.

A Description

This special provision describes designing, manufacturing, furnishing, fabricating, and installing high-load multi-rotational bearing assemblies. Define high-load multi-rotational bearings as pot or disc style bearings where called for on the plans.

B Materials

B.1 Qualifications of the Manufacturer

Submit to the engineer evidence of the manufacturer's minimum of 5 years' experience in the design and manufacture of high-load multi-rotational bearings of the type specified. Submit to the engineer evidence of the manufacturer's certification by the American Institute of Steel Construction Quality Certification Program – Simple Steel Bridges.

B.2 General

Use materials conforming to standard spec 506. Do not use any reclaimed material in the finished bearings. Any visual defects will be cause for rejection.

B.3 Steel Plate

Use steel plate conforming to the requirements of ASTM A709, Grade 36, Grade 50, or Grade 50W.

B.4 Stainless Steel

Use stainless steel conforming to the requirements of ASTM A240, Type 304, Number 8 finish.

B.5 Brass

Use brass for sealing rings used in pot bearings conforming to the requirements of ASTM B36, half-hard alloy 260.

B.6 Polytetrafluoroethylene (PTFE)

Use PTFE manufactured from pure virgin unfilled TFE resin conforming to ASTM D4894 or D4895. Provide PTFE material that is resistant to acids, alkalis, and petroleum products. Provide PTFE material that is non-absorbing to water, stable from -360 degrees F to +500 degrees F, and non-flammable. Use material meeting 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

To bond the sheet PTFE, use adhesive made 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 conforming 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.
		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 conforming to 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.

B.11 Anchor Bolts

Provide anchor rods as shown on the plans and conforming to ASTM F1554 (Grade 105) and hot-dip galvanize per 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-inch 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 conforming 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 and construction 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 1/8-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 not less than 3/4-inch. Provide shim plates or thicker masonry and sole plates than are required per strength considerations 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 inches and use a minimum of 13 gauge when the maximum dimension is larger than 12 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 per 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.

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 3/8-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 1/8-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 per 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 Connecting Bolts

Use bolts to connect the top plate of the bearing to the steel superstructure members using a “snug tight” connection as defined in AASHTO LRFD Bridge Construction Specifications, Section 11.5.6.4.

C.1.14 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.1.15 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.1.16 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 1/2-inch. Obtain the engineer’s approval of procedures for future replacements of individual components prior to 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. Obtain engineer approval of any modifications from details shown in the plans required to accommodate the bearings chosen 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, including anchor bolt snug tight requirement or as modified by the manufacturer. Shop drawings which lack manufacturer’s installation instructions will be returned without approval. Wrapping material is subject to the engineer’s 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 according to section C.7 of this special provision and type of coating used.

C.4 Shop Inspection

Allow the inspectors free access to the necessary areas of the manufacturer's plant. Notify the engineer at least two weeks in advance of manufacturing.

C.5 Fabrication Requirements

C.5.1 Tolerances

Provide fabrication tolerances conforming to the requirements of the AASHTO LRFD Bridge Construction Specifications, and as herein specified.

C.5.2 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.6 Painting or Metalizing

Paint or zinc metalize the bearing assemblies conforming 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. Do not allow any paint or metalizing into tapped holes.

C.7 Sampling, Testing, and Inspection

Sample per 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;
- Greater than 3% measured static and dynamic coefficient of friction;

- 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 in excess of 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. If the tested bearing shows failure, load test the remaining bearings for acceptance at the manufacturer's expense.

C.8 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. 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.9 Installation

Install the bearings in strict conformance to the manufacturer's instructions as approved by the engineer, including anchor bolt snug tight requirement or as modified by the manufacturer. 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, 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, Bearings High-Load Multi-Rotational Guided, and Bearings High-Load Multi-Rotational Non-Guided by the unit for each bearing, 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.0060.4080	Bearings High-Load Multi-Rotational Guided	EACH

Payment for Bearings High-Load Multi-Rotational Fixed, Bearings High-Load Multi-Rotational Guided, and Bearings High-Load Multi-Rotational Non-Guided is full compensation for furnishing and installing bearings

227. Bearings High-Load Multi-Rotational T-Guided UPRR, Item SPV.0060.4088; Bearings High-Load Multi-Rotational Non-Guided UPRR, Item SPV.0060.4108; Bearings High-Load Multi-Rotational L-Guided UPRR, Item SPV.0060.4128.

A Description

This special provision describes designing, manufacturing, furnishing, fabricating, and installing high-load multi-rotational bearing assemblies according to the details shown on the plans, part 5 of chapter 15 of volume 2 of the American Railway Engineering and Maintenance-of-Way Association (AREMA) code, standard spec 506, as directed by the Union Pacific Railroad Company (UPRR) engineer, and as hereinafter provided. UPRR High-load multi-rotational bearings, where called for on the plans, shall be defined as disc style bearings. Pot bearings are not allowed per AREMA 15-5.1.5.c and 15-5.7.1.c. Where the AREMA code conflicts with standard spec 506, the AREMA code shall control.

This work includes providing complete disc bearing assemblies including sole plate, masonry plate, intermediate load distribution plates, polyether urethane disc, PTFE sliding surfaces, 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 Manufacturer

The manufacturer shall demonstrate a minimum of 5 years' experience in the design and manufacture of high-load multi-rotational bearings of the type specified, and be certified under the American Institute of Steel Construction Quality Certification Program – Simple Steel Bridges. The following manufacturer is approved and required for the bearings on Bridge B-40-878 per agreement with the UPRR. No substitutions are allowed:

R. J. Watson, Inc.
11035 Walden Ave
Alden, NY 14004
Phone: (716) 901-7020
Fax: (716) 901-7015

A.2 Detailed Design Calculations and Plans

Modify standard spec 102.5(3) with the following:

4. Detailed design calculations and design plans for all High-Load Multi-Rotational Bearings supporting the new UPRR Bridge over US 45 are available for review at the department's Regions office. Contact Chris Zacharias, 141 NW Barstow Street, Waukesha, WI 53187, (262) 548-6716.

The detailed design calculations and design plans referenced in the paragraph above have been developed by R. J. Watson and approved by UPRR prior to contract advertisement and should be used as a basis for submittal requirements outlined in subsection C.3 of this special provision.

B Materials

B.1 General

Use new and unused materials with no reclaimed material incorporated into the finished bearings, that conform to the applicable provisions of the AREMA code and 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. Horizontal movement is allowed in only one direction as shown on the plans and must resist horizontal forces in constrained directions.

Multi-Rotational Non-Guided bearings allow rotation and horizontal movement in all directions.

B.3 Steel Plate

Use steel plate that conforms to the requirements of ASTM A709, Grade 50W.

B.4 Stainless Steel

Use stainless steel that conforms to the requirements of ASTM A240, Type 304, Number 8 finish.

B.5 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. It shall have a melting point of 621 degrees F, plus or minus 18 degrees F, and meet the following test requirements:

Physical Property	ASTM Test Method	Requirement
Ultimate Tensile Strength, min.	D4894	2800 psi
Ultimate Elongation, min.	D4894	200%
Specific Gravity	D792	2.13 to 2.19

B.6 Adhesive

Use adhesive to bond sheet PTFE made of an epoxy material stable from -100 degrees F to +250 degrees F.

B.7 Polyether Urethane Disc

Mold the disc bearing polyether urethane disc from a polyether urethane compound. Construct it per AREMA 15-5.7.2 and 15-5.13 and meet the following test requirements:

Physical Property	ASTM Test Method	Requirement
Hardness, Shore D Durometer	D2240	60 min., 65 max.
Tensile Stress	D412	
At 100% Elongation, min.		2100 psi
At 200% Elongation, min.		3700 psi
Tensile Strength, min.	D412	5500 psi
Ultimate Elongation, min.	D412	253%
Compression Set After 22 Hours	D395 (Method B)	
Temperature		158 degrees F
Compression set, max.		40%

B.8 Connecting Bolts

Use high strength bolts that conform to the requirements of AREMA chapter 15 and standard spec 506. Use lock washers that are steel, regular, helical spring washers meeting ANSI B18.21.1. Galvanize lock washers according to ASTM F2329. 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 AREMA 15-3.2.3.

B.9 Anchor Bolts

Provide anchor rods as shown on the plans and according to ASTM F1554 (Grade 105) and hot-dip galvanize according to ASTM F2329.

B.10 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.11 Bedding Pads

Provide a 1/4” thick bedding pad the same size as the masonry plate conforming to AREMA 15-5.7.3.6.

C Construction

C.1 Design Requirements

C.1.1 General

Bearings have been designed and shall be manufactured for the loads and movements given on the plans and according to AREMA chapter 15, part 5. Perform design calculations confirming the adequacy

of the bearing information shown in the plans. Provide bearing designs including anchorage against vertical and applicable horizontal movement according to AREMA 15-5.1.2.d and include a minimum rotation of 0.02 radians or the design rotation, whichever is greater. 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 of requirements:

C.1.2 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 with an allowable bending stress of 0.55 x Fy, but with a thickness not less than that shown on the plans or 0.75 inch for sole plates and 1.5 inch for masonry plates. 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 UPRR engineer and the engineer, such as weldability and bearing height. Provide the masonry plate with a machined recess sized to allow the snug placement of any lower bearing plates.

C.1.3 Upper and Lower Steel Plates

Apply, as appropriate, the provisions of AREMA chapter 15, part 5 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.1.4 Guide Bars

Conform to the requirements of AREMA 15-5.3.8 and as described in this section. 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.1.5 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.1.6 Stainless Steel Sheet

Use stainless steel sheets with a minimum 13 gauge thickness. Attached the stainless steel sheets to their backing plates by continuous fillet welding along their edges. Do not bond and/or mechanical fasten any sheets. Design and attach the stainless steel sheets with a connection capable of resisting the frictional force set up in the bearing. Weld according to AWS D1.6. Provide the backing plates with a minimum Brinell hardness of 125 and 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.1.7 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 according to AREMA 15-5.5.3.

C.1.8 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 so 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.1.9 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.1.10 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 to the UPRR engineer and the engineer for approval prior to ordering materials. Prepare any modifications required at no additional cost to the department.

C.1.11 Future Maintenance

Design and manufacture bearings so that future maintenance of the bearings can be performed. Provide the manufacturer's instructional manual to the UPRR engineer and the engineer for the inspection and maintenance of the bearings. Include in this manual all the necessary steps to inspect and replace any and all portions of the bearings. 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 and submit for approval of the UPRR engineer and 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 UPRR engineer and 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 UPRR engineer and 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, plan details 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 according 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 UPRR engineer and the engineer does not relieve the manufacturer of complete responsibility for their accuracy and completeness.

C.5 Shop Inspection

The UPRR engineer and the engineer reserve 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 UPRR engineer and the engineer at least two weeks in advance of manufacturing.

C.6 Fabrication Requirements

C.6.1 Tolerances

Provide fabrication and tolerances according to the requirements of AREMA chapter 15, part 5, 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 AREMA 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 according to AWS C2.18-93 and AWS C2.23:2003. Do not galvanize. Do not paint or metalize any surfaces covered by stainless steel or PTFE sheet. Mask off tapped holes during painting or metalizing.

C.8 Sampling, Testing, and Inspection

Sample according to AREMA chapter 15, part 5, the standard specifications, or as determined by the UPRR engineer and the engineer.

Perform all testing in the presence of a representative of the Union Pacific Railroad and the department or their 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 one hour.

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 UPRR engineer and 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 to the assembly.

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.

The following indicates failure during testing:

- Binding of bearing components or other movement restrictions occur 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 exceeding 10% of the thickness of the unstressed disc for disc bearings.

Furnish to the UPRR engineer and the engineer 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 to the UPRR engineer or the engineer random samples of component materials used in the bearings for testing by the UPRR or the department. The UPRR or 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 UPRR engineer and 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 UPRR engineer's and 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 UPRR engineer and the engineer and manufacturer.

Repair or replacement of damaged bearing assemblies, in part or in whole, will be at the discretion of the UPRR engineer or the engineer at no additional cost to the department.

C.10 Installation

Install the bearings in conformance to AREMA 15-5.8.5 and as described in this section. Install the bearings in strict accordance to the manufacturer's instructions as approved by the UPRR engineer and the engineer. Furnish technical assistance to the contractor and the UPRR engineer 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 UPRR engineer or 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 (type) UPRR by the unit for each bearing, acceptably completed according 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.0060.4088	Bearings High-Load Multi-Rotational T-Guided UPRR	EACH
SPV.0060.4108	Bearings High-Load Multi-Rotational Non-Guided UPRR	EACH
SPV.0060.4128	Bearings High-Load Multi-Rotational L-Guided UPRR	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, bedding pad, connection bolts, anchor bolts and non-shrink grout; for preparing shop drawings; and for providing technical assistance at the project site.

228. Thermal Integrity Profiler (TIP) Testing, Drilled Foundation Shaft 59.06-Inch, Item SPV.0060.4148; Thermal Integrity Profiler (TIP) Testing, Wall Secant Pile 59.06-Inch, Item SPV.0060.4168.

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, drilled tangent pile wall shafts or drilled secant pile wall shafts hereinafter referred to as “drilled shafts”. Data will be acquired using Thermal WiresTM, 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.2 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 90o 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.3 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, and the UPRR engineer if applicable.

C.4 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, and the UPRR engineer if applicable, 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 pay items 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.0060.4148	Thermal Integrity Profiler (TIP) Testing, Drilled Foundation Shaft 59.06-Inch	EACH
SPV.0060.4168	Thermal Integrity Profiler (TIP) Testing, Wall Secant Pile 59.06-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.

229. Crosshole Sonic Log (CSL) Testing, Drilled Foundation Shaft 59.06-Inch, Item SPV.0060.4171; Crosshole Sonic Log (CSL) Testing, Wall Secant Pile 59.06-Inch, Item SPV.0060.4172; Crosshole Sonic Log (CSL) Testing, Wall Tangent Pile 36-Inch, Item SPV.0060.4173.

A Description

A.1 General

This special provision describes providing specialized equipment and trained testing personnel and to perform Crosshole Sonic Log (CSL) testing of drilled shafts according to the plans and as hereinafter provided.

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.

A.2 CSL Testing Personnel Requirements

The contractor shall provide a CSL testing expert to direct and perform all aspects of the CSL testing and provide interpretation of results. The CSL testing expert shall be a professional engineer licensed in the State of Wisconsin, be employed by an independent testing agency, and have experience on a minimum of 5 projects performing CSL testing of drilled shafts. The independent testing agency shall have a minimum of 3 years of experience in performing CSL testing of drilled shafts. Submit the qualifications of the proposed CSL testing expert to the engineer for approval prior to beginning drilled shaft installation.

B (Vacant)

C Construction

C.1 CSL Testing Coordination

Schedule and coordinate drilled shaft construction with the CSL testing expert. Alter normal construction procedures as necessary to facilitate the CSL testing procedure. This includes providing suitable and safe access to the site and specific locations of drilled shafts to be tested and aiding the CSL expert to facilitate the CSL testing.

C.2 CSL Testing

Perform CSL testing and analysis on each completed drilled shaft. Conduct CSL testing in accordance with ASTM D 6760. Notify the engineer, and the UPRR engineer if applicable, of the date and time of each CSL test at least 48 hours prior to the scheduled test. Perform CSL testing after the drilled shaft concrete has cured at least 72 hours and after the concrete compressive strength reaches or exceeds 2,500 psi.

Pull the CSL probes simultaneously, starting from the bottoms of the access tubes, over an electronic depth measuring device. Perform the CSL tests with the source and received probes in the same horizontal plane. Continuously record CSL signals at depth intervals of 2.5 inches or less from the bottom of the tubes to the top of each shaft. Perform CSL testing on every possible tube combination.

Immediately report potential local defects indicated by testing to the engineer and the UPRR engineer.

Grout the access tubes after testing is complete, at the direction of the engineer, and the UPRR engineer if applicable. Place the grout with a pump, starting at the bottom of each access tube.

C.3 CSL Evaluation

Evaluate the concrete in the shaft using the following classification on each CSL profile:

- Satisfactory:
  - FAT increase 0% to 20%, and;
  - Energy reduction less than or equal to 9 decibels
- Defect:
  - FAT increase greater than 20%, or;
  - Energy reduction greater than 9 decibels

C.4 CSL Testing Reports

Within three working days of completion of CSL testing and receipt of shaft construction record, submit a CSL Testing Report for each tested drilled shaft to the engineer and the UPRR engineer summarizing CSL testing results. At a minimum the CSL testing reports must include:

(1) A description of the testing equipment, the date and location of test, and the number of days between concrete placement and CSL testing.

(2) The CSL ultrasonic profiles with analyses of the following all tube pair combinations tested:

a. First pulse arrival time (FAT) versus depth.

b. Relative pulse energy / amplitude versus depth.

c. A presentation of the nested signal peak as a function of time plotted versus depth (waterfall diagram).

d. Note all shaft-specific construction information (e.g. elevations of the top of shaft, bottom of casing, bottom of shaft, etc.), on all pertinent graphical displays.

(3) Indication of size and location along the depth of the shaft of all defects.

(4) A discussion and assessment of the data quality and integrity of the tested drilled shaft, including a discussion of all interpretations in conflict with the evaluation criteria in subsection C.3, as well as a discussion of all other unusual results.

(5) Conclusions or recommendations concerning the acceptability of the drilled shaft based on the interpretation of the CSL testing results against the evaluation criteria in subsection C.3.

D Measurement

The department will measure Crosshole Sonic Log (CSL) Testing pay items by the unit for each drilled shaft tested, acceptably completed, regardless of the number of access tubes 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.0060.4171	Crosshole Sonic Log (CSL) Testing, Drilled Foundation Shaft 59.06-Inch	EACH
SPV.0060.4172	Crosshole Sonic Log (CSL) Testing, Wall Secant Pile 59.06-Inch	EACH
SPV.0060.4173	Crosshole Sonic Log (CSL) Testing, Wall Tangent Pile 36-Inch	EACH

Payment will be full compensation for furnishing testing equipment and performing CSL testing, evaluating and interpreting results, and providing test reports.

Furnishing and installing CSL access tubes are included in the shaft bid items.

230. Tieback Anchors, Item SPV.0060.4175; Tieback Anchors Performance Tests, SPV.0060.4180.

A Description

A.1 General

The work under this item consists of permanent, pressure-grouted or post grouted, ground anchors designed, furnished, installed, tested, and stressed.

Install ground anchors that shall develop the load carrying capacity indicated on the plans conforming to the testing subsection of these special provisions.

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 and the AASHTO LRFD Bridge Construction Specifications.

A.2 Qualifications of the Contractor

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.

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.

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.

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

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 thirty 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.

The engineer will approve or reject the contractor's submittals within 30 business days after receipt of the submission.

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.

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.

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 per standard spec 106.

A.4 Definitions

Anchorage Devices. The anchor head wedges or nuts, which grip the prestressing steel.

Bearing Plate. The steel plate, which distributes the ground anchor force to the structure.

Bond Length. The length of the ground anchor, which is bonded to the ground and transmits the tensile force to the soil or rock.

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.

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.

Minimum Specified Ultimate Tensile Strength. The minimum breaking strength of the prestressing steel as defined by the specified standard.

Tendon Bond Length. The length of the tendon, which is bonded to the anchor grout.

Total Anchor Length. The unbonded length plus the tendon bond length.

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

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

ASTM Standards

- A53 Specification for Steel Pipe
- A252 Specification for Welded and Seamless Steel Pipe Files
- A500 Specification for Cold-formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes

- A722 Threadbar Prestressing Steel
- A779 Compact Seven-wire, low relaxation strands
- D1248 Specification for Welded and Seamless Steel Pipe Files
- D1784 Specification for Rigid Poly Vinyl Chloride (PVC) Compounds and Chlorinated Poly Vinyl Chloride (CPVC) Compounds
- D4101 Specification for Propylene Plastic Injection and Extrusion Materials

Post-Tensioning Institute Standards

- "Guide Specification for Post-Tensioning Materials," Post-Tensioning Manual, Post Tensioning Institute.
- "Specification for Unbonded Single Strand Tendons," Post-Tensioning Institute.
- "Recommendations for Prestressed Rock and Soil Anchors," Post-Tensioning.

B.2 Tieback Anchors

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 per the manufacturer's recommendations.

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.

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".

Fabricate the bearing plate from steel conforming to ASTM A572 Grade 50 or AASHTO M223 Grade 50 specifications.

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 non-detrimental 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.

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".

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.

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.

Use steel couplers capable of developing 95 percent of the minimum specified ultimate tensile strength of the tendon.

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 D1248 (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 D4101 (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 D3350 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 A500, minimum wall thickness of 0.20 inches.
- Steel pipe conforming to ASTM A53, Schedule 40 minimum.
- Plastic pipe conforming to ASTM A1185, Schedule 40 minimum.
- A corrugated tube conforming to the requirement of the tendon bond length encapsulation.

Spacers must permit grout to freely flow up the drill hole. Fabricate spacers from plastic, steel, or material that is non-detrimental to the prestressing steel. Do not use wood. A combination centralizer-spacer may be used.

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 A53 for pipe or ASTM A500 for tubing. The trumpet must have a minimum wall thickness of 0.125 inches for diameters up to 4 inches and 0.20 inches for larger diameters.

Use potable water for mixing grout.

Fabricate tendons conforming 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.

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.

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

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

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.

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.

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

Use a neat cement grout. The cement must not contain lumps or other indications of hydration. Admixtures, if used, must be mixed conforming to the manufacturer’s recommendations.

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.

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.

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.

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

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.

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.

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.

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

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.

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

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.

Conduct performance tests according 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 according to the proof test procedures.

Conduct performance tests by incrementally loading and unloading the ground anchor according 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.

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

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.

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

Perform the proof test by incrementally loading the ground anchor according 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.

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.

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

Plot the ground anchor movement versus load for each load increment in the proof test.

Submit proof tests for review by the engineer within 7 days of testing.

C.3.4 Ground Anchor Load Test Acceptance Criteria

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.

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.

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.

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.

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.

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

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.

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.0060.4175	Tieback Anchors	EACH
SPV.0060.4180	Tieback Anchor Performance Tests	EACH

Payment for Tieback Anchors and Tieback Anchor Performance Tests is full compensation for drilling; grouting; furnishing all steel, bearing plates and corrosion-protection materials required and tensioning.

231. Pile Integrity Testing (PIT), Drilled Foundation Shaft 59.06-Inch, Item SPV.0060.4181; Pile Integrity Testing (PIT), Wall Secant Pile 59.06-Inch, Item SPV.0060.4182.

A Description

A.1 General

This special provision describes providing specialized equipment and trained testing personnel and to perform Pile Integrity Testing (PIT) of drilled shafts in accordance to the plans and as hereinafter provided.

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 procedure are well established and specified by ASTM D5882.

A.2 TIP Testing Personnel Requirements

The contractor shall provide a PIT testing expert to direct and perform all aspects of the PIT testing and provide interpretation of results. The PIT testing expert must be a professional engineer licensed in the State of Wisconsin. The PIT testing expert shall be employed by an independent testing agency with documented and approved experience in PIT testing. Submit the qualifications of the proposed PIT testing expert to the engineer for approval prior to beginning drilled shaft installation.

B Materials

Provide a PIT testing data collection system, a motion transducer, and an impact source. The data collection system shall be capable of automatically collecting stress waves verses time as measured through the transducer.

C Construction

C.1 PIT Testing Coordination

Schedule and coordinate drilled shaft construction with the PIT testing expert. Alter normal construction procedures as necessary to facilitate the PIT testing procedure. This includes providing suitable and safe access to the site and specific locations of drilled shafts to be tested and aiding the PIT expert to facilitate the PIT testing.

C.2 PIT Testing

Perform the test when shaft concrete has achieved at least 75% of its design strength, or a minimum of 7 days has elapsed from casting. Prior to beginning the PIT test, assure that the concrete top is accessible and cleaned. Attach the motion transducer to the top of the shaft using bonding material. Perform the test in accordance with ASTM D5882.

Immediately report potential local defects indicated by stress wave speed to the engineer, and the UPRR engineer if applicable.

C.3 PIT Testing Reports

Within three working days of completion of PIT testing and receipt of shaft construction record, submit a PIT Testing Report for each drilled shaft tested to the engineer, and the UPRR engineer if applicable, summarizing PIT testing results. At a minimum the PIT testing reports must include:

(1) Graphical displays of stress wave amplitude vs. shaft depth.

(2) Indication of anomalies, unusual test results, and interpretation of all results.

(3) 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.

(4) Conclusions or recommendations concerning the acceptability of the drilled shaft based on the interpretation of the PIT testing results obtained.

D Measurement

The department will measure Pile Integrity Testing (PIT) pay items by the unit for each drilled shaft tested, 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.0060.4181	Pile Integrity Testing (PIT), Drilled Foundation Shaft 59.06-Inch	EACH
SPV.0060.4182	Pile Integrity Testing (PIT), Wall Secant Pile 59.06-Inch	EACH

Payment will be full compensation for furnishing PIT testing equipment and performing PIT testing, evaluating and interpreting results, and providing test reports.

232. Anchor Assemblies Noise Barrier Structures, Item SPV.0060.4185.

A Description

Furnish and install anchor bolt assemblies for 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 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.0060.4185	Anchor Assemblies Noise Barrier Structures	EACH

Payment is full compensation for furnishing and installing the anchorages.

233. Anchor Slab Inlet Cover Special, Item SPV.0060.4190.

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.0060.4190	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.

234. Fire Hydrant Sign Mounting, Item SPV.0060.4195.

A Description

This special provision describes installing fire hydrant signs according to the plan details, according to standard spec 637, and as hereinafter provided.

B Materials

B.1 Signs

The signs and associated material indicated will consist of the following:

1. Sign Blade. The blade shall be 36” x 6”, flat aluminum to accommodate two-sided reflective sheeting.
2. Mount. The mount shall be a full surround bracket w/o divider, to fit a 36” x 6” blade.
3. Fire Hydrant sign – mounted on wall, parallel to wall.

B.2 Mount

Select a mount from one of the sources shown below or an approved equal.

Supplier	Model Number
TAPCO 800 Wall Street Elm Grove, WI 53122	203-17
Traffic Signal Company of Wisconsin 6318 West State Street Wauwatosa, WI 53213	203-17
Decker Supply P.O. Box 8008 Madison, WI 53708	W-800

B.3 Mounting Hardware for Blade Signs

Mount the signs to the sound wall with four 5/16-inch diameter stainless steel bolts with stainless steel self-tightening nuts connecting the two mounting brackets through the wall. Install one sign in each plate, such that both signs are perpendicular to the sound wall on either side of the wall. Mount fire hydrant signs using 5/16-inch diameter stainless steel bolts with stainless steel self-tightening nuts connecting the sign to the wall.

C Construction

Install the signs by drilling four 7/16-inch dimeter holes through the noise barrier panel to match hole locations on the mounting brackets to be attached on each side of the panel. Attached the mount to the sound wall in a stable position, not more than 2 feet from the top of the structure. The mount will not be more than 5 feet on either side of a vertical line extending up from the actual fire hydrant access point depending on field conditions.

D Measurement

The department will measure Fire Hydrant Sign Mounting as a unit for 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.0060.4195	Fire Hydrant Sign Mounting	EACH

Payment is full compensation for providing all materials including hardware and reflective sheeting; and for drilling holes and anchors. The sign is paid for separately under the Signs Reflective Type II.

235. Sanitary Manhole Type A 48-Inch, Item SPV.0060.5100.

A Description

This work includes furnishing and installing a standard 48-Inch diameter sanitary manhole (Type A) 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.

Perform the work according to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition.

B Materials

B.1 General

All materials and work required to install the manhole will conform to the Standard Specifications for Sewer and Water.

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.

B.3 Frame and Grate

New frames and covers are required on all new sanitary manholes and shall be supplied by the contractor. Sanitary sewer manhole covers shall be self-sealing with an o-ring gasket. They shall be Neenah R-1661-B or equal. They shall have one 1-Inch vent hole which is sealed with a removable flexible plug and two concealed pick holes. Frames for sanitary sewer manholes shall be compatible with the covers.

B.4 Manhole Seal

Furnish and install new Cretex, NPC Flexrib, or approved equal internal frame/chimney seal, as shown in the construction details on the plans. Meet the material requirements of section 8.42.3 and the performance requirements of section 8.42.4 of the Standard Specifications for Sewer and Water.

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.

B.6 Steps

All manholes shall be provided with steps equally spaced vertically at a maximum of 16 inches on center installed by the manufacturer. Steps shall be embedded into the riser or conical top section of the wall a minimum of 3 inches. Manhole steps shall be made of gray cast iron conforming to the requirements of ASTM Designation A-48 Class No. 30B and shall have a minimum cross sectional dimension of one inch in any direction. Each section of the manhole shall be aligned so the steps create a continuous ladder.

B.7 Backfill Slurry

Backfill slurry shall meet the material and construction requirements of section 8.43.8 of the Standard Specifications for Sewer and Water.

C Construction

Construct manholes as shown in the plans. Fill the excavation with backfill slurry, to existing surface or to appropriate depth for pavement restoration.

C.1 Inverts

Construct benches up to the crown or top of the outgoing pipe and slope as specified for a sanitary manhole according to File Numbers 11, 12, and 13 of the Standard Specifications for Sewer and Water.

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 Sanitary Manhole Type A 48-Inch 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.0060.5100	Sanitary Manhole Type A 48-Inch	EACH

Payment is full compensation for furnishing and installing all materials including pre-cast manhole base, riser, bench, cone section, frames, grates or lids, and chimney adjustment rings; for installing gaskets, joint seals, steps, bedding material, backfill material, for furnishing and placing backfill slurry, for furnishing all excavation, dewatering, sheathing and shoring, forming foundation, and masonry work; for making sanitary sewer connections; for making lateral connections: for backfilling including mechanical compaction and compaction testing; for removing sheeting and shoring; for disposal of all surplus or waste material; and for clean-up. The removal of existing sanitary sewer pipe and manholes from within the trench of replacement of sanitary sewer manholes will not be paid separately but shall be considered incidental to the item.

236. Sanitary Manhole Type A 60-Inch, Item SPV.0060.5101.

A Description

This work includes furnishing and installing a standard 60-Inch diameter sanitary manhole (Type A) 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; installing and removing temporary bench and flowline for new manhole used as temporary bypass.

Perform the work in accordance with the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition (SSSW).

Notify City of Wauwatosa & Tim Kaczkowski (MMSD), 414-225-2241, of the commencement of construction at least 3 days in advance.

B Materials

B.1 General

All materials and work required to install the manhole will conform to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition (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 Grate

New frames and covers are required on all new sanitary manholes and shall be supplied by the contractor. Sanitary sewer manhole covers shall be self-sealing with an o-ring gasket. They shall be Neenah R-1661-B or equal. They shall have one 1-Inch vent hole which is sealed with a removable flexible plug and two concealed pick holes. Frames for sanitary sewer manholes shall be compatible with the covers.

B.4 Internal Manhole Chimney Seal

Furnish and install new Cretex, NPC Flexrib, or approved equal internal frame/chimney seal, as shown in the construction details on the plans. Meet the material requirements of section 8.42.3 and the performance requirements of section 8.42.4 of the Standard Specifications for Sewer and Water.

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.

Use Mac-Wrap by Mar Mac Construction Products Co. or Cretex Wrap by Cretex

Specialty Products or ConWrap CS-212 by Concrete Sealants, Inc or approved equal. This shall be considered incidental to the installation of the sanitary sewer manhole.

B.6 Steps

All manholes shall be provided with steps equally spaced vertically at a maximum of 16 inches on center installed by the manufacturer. Steps shall be embedded into the riser or conical top section of the wall a minimum of 3 inches. Manhole steps shall be made of gray cast iron conforming to the requirements of ASTM Designation A-48 Class No. 30B and shall have a minimum cross sectional dimension of 1 inch in any direction. Each section of the manhole shall be aligned so the steps create a continuous ladder.

C Construction

Construct manholes as shown in the plans. Fill the excavation with Backfill Slurry, to existing surface or to appropriate depth for pavement restoration.

C.1 Inverts

Construct benches up to the crown or top of the outgoing pipe and slope as specified for a sanitary manhole according to File Numbers 11, 12, and 13 of the Standard Specifications for Sewer and Water.

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.

C.3 Vacuum Testing

Perform work under this item according to the requirements of the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition (SSSW) 3.7.6 (Vacuum Testing of Sanitary Manholes)

Manholes shall be tested after installation with all connections in place. Test shall include testing of the seal between the frame and the concrete cone, slab or grade rings.

Isolate the manhole to be tested by plugging the inlet and outlet pipes with an inflatable stopper or other approved plug. Plug lift holes with non-shrink grout.

Vacuum test equipment shall be place at the inside top cone section, according to the manufacturer's recommendations. Inflate the seal to 40 psi to effect a seal between the base and manhole. Run vacuum pump until a vacuum of 10 inches of mercury is obtained.

With Vacuum pump shut off and the valve on the vacuum line of the test head closed, measure the time for the vacuum to drop to 9 inches of mercury. The manhole test is acceptable if the time exceeds the value as listed in table 6a section 3.7.6 of the SSSW.

If a manhole fails the vacuum test, the manhole shall be repaired with a non-shrinkable grout or other material or method approved by the City of Wauwatosa. The manhole surfaces shall be properly prepared prior to any repairs. Once the repair material has cured according to the manufacturer's recommendations the vacuum test shall be repeated. This process shall continue until a satisfactory test is obtained.

C.4 Temporary Bench and Flowline

Construct temporary bench and flowlines in new manhole used as temporary bypass. Temporary bench and flowline must be built to the height of the springline of outgoing pipe, or higher. Temporary bench and flowlines must be removed prior to construct permanent bench and flowlines.

D Measurement

The department will measure Sanitary Manhole Type A 60-Inch 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	Sanitary Manhole Type A 60-inch	EACH

Payment is full compensation for furnishing and installing all materials including pre-cast manhole base, riser, temporary bench and flowline, permanent bench and flowline, cone section, frames, grates or lids, and chimney adjustment rings; for installing gaskets, joint seals, steps, bedding material, backfill material; for furnishing all excavation, dewatering, sheathing and shoring, forming foundation, and masonry work; for making sanitary sewer connections; for making lateral connections: for backfilling including mechanical compaction and compaction testing; for removing sheeting and shoring; for disposal of all surplus or waste material; and for clean-up.

237. Sanitary Manhole Type D, Item SPV.0060.5102.

A Description

This work includes furnishing and installing a standard 48-Inch diameter sanitary outside drop manhole (Type D) made of precast concrete with necessary reinforcement, frames and self-sealing covers, internal frame/chimney seal, outside drop and encasement, 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.

Perform the work according to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition.

B Materials

B.1 General

All materials and work required to install the manhole will conform to the Standard Specifications for Sewer and Water.

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.

B.3 Frame and Grate

New frames and covers are required on all new sanitary manholes and shall be supplied by the contractor. Sanitary sewer manhole covers shall be self-sealing with an o-ring gasket. They shall be Neenah R-1661-B or equal. They shall have one 1-Inch vent hole which is sealed with a removable flexible plug and two concealed pick holes. Frames for sanitary sewer manholes shall be compatible with the covers.

B.4 Manhole Seal

Furnish and install new Cretex, NPC Flexrib, or approved equal internal frame/chimney seal, as shown in the construction details on the plans. Meet the material requirements of section 8.42.3 and the performance requirements of section 8.42.4 of the Standard Specifications for Sewer and Water.

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.

B.6 Steps

All manholes shall be provided with steps equally spaced vertically at a maximum of 16 inches on center installed by the manufacturer. Steps shall be embedded into the riser or conical top section of the wall a minimum of 3 inches. Manhole steps shall be made of gray cast iron conforming to the requirements of ASTM Designation A-48 Class No. 30B and shall have a minimum cross sectional dimension of 1 inch in any direction. Each section of the manhole shall be aligned so the steps create a continuous ladder.

B.7 Outside Drop

All manholes shall meet the material and construction requirements of section 3.5.8.d and Detail File No. 19 of the Standard Specifications for Sewer and Water.

B.8 Backfill Slurry

Backfill slurry shall meet the material and construction requirements of section 8.43.8 of the Standard Specifications for Sewer and Water.

C Construction

Construct manholes as shown in the plans. Place bedding material the full depth of the excavation under the pipe prior to laying the pipe when a sewer main or lateral enters a manhole any distance above the manhole invert. Any sewer main or lateral entering a manhole greater than 2 feet above the spring line of the outgoing sewer, the incoming sewer shall be connected to the manhole by means of an outside drop manhole (Type D). The drop pipe shall be the same diameter as the incoming sewer. Fill the excavation with backfill slurry, to existing surface or to appropriate depth for pavement restoration.

C.1 Inverts

Construct benches up to the crown or top of the outgoing pipe and slope as specified for a sanitary manhole according to File Numbers 11, 12, and 13 of the Standard Specifications for Sewer and Water.

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 Sanitary Manhole Type D 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	Sanitary Manhole Type D	EACH

Payment is full compensation for furnishing and installing all materials including pre-cast manhole base, riser, bench, cone section, exterior drop pipe, frames, grates or lids, and chimney adjustment rings; for installing gaskets, joint seals, steps, bedding material, backfill material; for furnishing all excavation, dewatering, sheathing and shoring, forming foundation, and masonry work; for making sanitary sewer connections; for making lateral connections: for backfilling including mechanical compaction and compaction testing; for furnishing and placing backfill slurry; for removing sheeting and shoring; for disposal of all surplus or waste material; and for clean-up. The removal of existing sanitary sewer pipe and manholes from within the trench of replacement of sanitary sewer manholes will not be paid separately, but shall be considered incidental to the item.

238. Abandoning Sanitary Manhole, Item SPV.0060.5103.

A Description

This work includes abandoning existing sanitary manholes in place, according to the plans, the Standard Specifications for Highway and Structure Construction, latest edition and amendments, Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and amendments (SSSW), the “Special Provision Notes for Sanitary Sewer Work” as found in the plans, and as hereinafter provided and these special provisions.

B Materials

B.1 General

Furnish backfill slurry according to the pertinent requirements of standard spec 209 except as hereinafter modified. Use aggregates that conform to standard spec 501 for Grade A Concrete. 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.

B.2 Backfill Slurry

Backfill slurry shall meet the material and construction requirements of section 8.43.8 of the Standard Specifications for Sewer and Water.

C Construction

C.1 General

Clean manhole thoroughly. Plug the existing pipe with an 8-inch brick or concrete wall. Remove the walls of the structure to a depth of 3 feet below grade or to the base if directed by the engineer. Fill the excavation with backfill slurry, to existing surface or to appropriate depth for pavement restoration. Maintain satisfactory bypass service during these operations.

Salvaged castings become the property of 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.

D Measurement

The department will measure Abandoning 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.0060.5103	Abandoning Sanitary Manhole	EACH

Payment is full compensation for furnishing and installing all materials; for providing positive drainage of the area to be backfilled; for furnishing and placing backfill slurry; for salvaging frames and covers and for disposing of materials.

239. Adjusting Sanitary Manhole, Item SPV.0060.5104.

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, according 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.

B.5 Backfill Slurry

Backfill slurry shall meet the material and construction requirements of section 8.43.8 of the Standard Specifications for Sewer and Water.

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. Adjust manholes as necessary so that the frames and cover when placed will be at the established required grade. Install seals according 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.0060.5104	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 furnishing and placing backfill slurry; for disposing of surplus materials; and for cleaning out and restoring the structure.

240. Adjusting Water Valve Boxes, Item SPV.0060.5200.

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. 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 Valve Boxes 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.0060.5200	Adjusting Water Valve Boxes	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.

241. Permanent Connection to Existing 6-inch Water Main, Item SPV.0060.5210; Permanent Connection to Existing 8-inch Water Main, Item SPV.0060.5211; Permanent Connection to Existing 12-inch Water Main, Item SPV.0060.5212; Permanent Connection to Existing 16-inch Water Main, Item SPV.0060.5213; Permanent Connection to Existing 24-inch Water Main, Item SPV.0060.5214.

A Description

This special provision describes the connection of proposed water main to existing water main as shown on the plans. Perform this work according 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".

B.2 Couplings

The contractor shall supply a transition coupling at every permanent connection to the existing water system. The coupling shall be style 501 straight barrel transition coupling as manufactured by Romac Industries Incorporated or Dresser.

The coupling shall consist of center ring two end rings gasket and nuts and bolts to complete the assembly.

Center ring shall be ductile iron per ASTM A536, Grade 65-45-12 with a yellow fusion epoxy coat.

End rings shall be ASTM A356 Grade 65-45-12 color coded for the pipes that are being connected.

Gaskets shall be SBR per ASTM D2000 MBA710 for water and sewer.

Nuts and bolts shall be track head bolts heavy hex nuts rolled thread, stainless steel material for working pressures up to 260 psi.

C Construction

Construct each cut in connection to existing 6, 8, 12, 16 or 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 6, 8, 12, 16 or 24-inch 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.0060.5210	Permanent Connection to Existing 6-inch Water Main	EACH
SPV.0060.5211	Permanent Connection to Existing 8-inch Water Main	EACH
SPV.0060.5212	Permanent Connection to Existing 12-inch Water Main	EACH
SPV.0060.5213	Permanent Connection to Existing 16-inch Water Main	EACH
SPV.0060.5214	Permanent Connection to Existing 24-inch Water Main	EACH

Payment is full compensation for providing all labor, equipment, materials, fittings and accessories required; for all surveying; 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.

242. Hydrant Assembly, Item SPV.0060.5260.

A Description

This work includes providing and installing new hydrants, valves and hydrant leads 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, valves and piping boxes meeting the requirements of the City of Wauwatosa.

Fire Hydrants shall comply, where applicable, to AWWA Standard C-502, latest revision. Fire Hydrants shall be of the compression type, with the main valve opening against the pressure and closing with the pressure. The main valve opening shall be 5 ¼" diameter. Fire Hydrants shall be of a dry barrel design.

Fire Hydrants shall be rated at 150 psi water working pressure, tested at 300 pounds hydrostatic for structural soundness in the following manner; 300 pound hydrostatic test supplied from the inlet side, first with the main valve closed for the testing of the valve seat; second, with the main valve open for testing of the drain valves and the hydrant barrel.

Auxiliary shut-off (isolation) gate valves shall be provided.

Hydrant Assembly shall include a cast iron box and cover for installation flush with grade level.

The hydrant box shall not be attached to the hydrant at any point thus prohibiting loads from being transferred to the hydrant, standpipe, or connecting pipe.

Hydrant box, when properly installed with cover shall withstand a 25,000 pound load. Hydrants shall have 2-2 ½" hose connections and 1-4 ½" nozzle.

B.2 Hydrant Lead Piping

Ductile iron (DI) piping shall be according to AWWA C150, Class 55. Design pipe designed 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.

Hydrants shall be connected to the main by a 6" mechanical joint or flanged shoe. Mechanical joint shoes shall be fitted with strapping lugs.

B.3 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.

Join pipe and fittings by means of a push-on rubber gasket joints conforming to AWWA C111.

Nuts and bolts for joints and fittings shall be corrosion resistant steel, NSS Technologies Inc. or Cor-Blue.

B.4 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.

Provide 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 Scapa Sealing Tape No. 136.

B.5 Resilient Wedge Gate Valves

City of Wauwatosa standard conforming to AWWA Standard C515 covering Resilient Seated Gate Valves for Water Supply Service and be rated for 250 PSIG cold water working pressure.

The valves shall have a ductile iron body, bonnet, and stuffing box. The wedge shall be ductile iron and totally encapsulated with rubber.

The sealing rubber shall be permanently bonded to the wedge per ASTM D429.

Valves shall be supplied with 0-ring seals at all pressure retaining joints. No flat gaskets or conventional type packing shall be allowed on NRS valves.

The valves shall be non-rising stem, opening by turning clockwise, and provided with a 2" square operating nut.

Stems for NRS assemblies shall be copper alloy with integral collars in full compliance with AWWA. Stems shall operate with copper alloy stem nuts independent of wedge and of stem. NRS stems shall have two 0-rings located above thrust collar and two 0-rings below. Stem 0-rings above the thrust collar shall be replaceable with valve fully opened and subjected to full pressure. The stems shall also have one low-torque thrust bearing located above and one below the stem collar to reduce friction during operation.

The body, bonnet and stuffing box shall be fusion-bond epoxy coated, both interior and exterior. Epoxy shall be applied according to AWWA C550 and be NSF 61 Certified.

Each valve shall have maker's name, pressure rating, and year in which it was manufactured cast in the body. Prior to shipment from the factory, each valve shall be tested by hydrostatic pressure equal to the requirements of AWWA C515.

Valves shall be provided with bevel gears (horizontal) or spur gears (vertical) as indicated.

All external bolting materials shall be stainless steel and have hexagonal heads.

Valves shall have component parts cast, machined, assembled, and tested in the USA and shall be Mueller or Waterous.

B.6 Water Valve Box and Valve Box Adapter

Manufacturers: Tyler Union or Sigma.

Covers: Cast iron according to and meeting all applicable terms and provisions of ASTM A-48. All valve boxes when properly installed are to be suitable for use in conjunction with projects utilizing American Association of State and Highway Transportation Officials (AASHTO) standards.

Provide a valve box adapter for the interface between the valve box and the valve. Provide a top, bottom and extension, if required, to fit all bury depths.

B.7 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 Scapa Sealing Tape No. 136.

C Construction

C.1 General

According 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 existing water main to which new hydrant tee and lead piping is to connect to verify line, grade and connection required.

Limit horizontal excavation to sufficient exterior clearance to allow a safe work area for installers.

Where ground water is present in bottom of excavation, remove water by pumping, maintain free of water, and place 12 inches of crushed stone as bedding.

Perform backfilling carefully, bringing fill up evenly on all sides.

C.2 Installation of Hydrant Assembly

Provide hydrants, hydrant lead valves, fittings, and branch T-connectors with independent support of minimum 16-Inch x 8-Inch x 4-Inch solid block or 3000 psi formed concrete pad.

Place crushed clear stone below base of hydrant to 6 inches above drain holes in hydrant stem.

Set hydrant plumb and centerline of hydrant vertical. Solidly buttress hydrant against trench wall.

Hydrants shall be constructed of ASTM A-126 Class B cast iron.

The bottom stem threads of the main valve rods shall be fitted with a cap nut for sealing the threads away from the water.

Changes in size or shape of the waterway shall be accomplished by means of easy curves. Exclusive of the main valve opening, the net area of the waterway of the barrel and the foot piece at the smallest part shall not be less than 120% of that of the net opening of the main valve.

Hose and pumper caps shall be individually chained to the hydrant.

The operating threads of the hydrant shall be so designed as to avoid the working of any iron or steel parts against either iron or steel. The operating stem and operating nut threads shall be square or acme type.

Bonnet shall be weather proof, free draining, and of a type that will maintain the operating mechanism in readiness for use under freezing conditions.

The operating nut shall be provided with a convenient means to afford lubrication to ensure ease of operating and the prevention of wear and corrosion. Hydrants shall be of dry barrel type. Hydrant shoe shall have two positive acting non-corrodible drain valves that shall drain the hydrant completely by opening when the main valve is closed, and also to close tightly when the main valve is open.

All like parts of hydrants of the same size and model produced by the same manufacturer shall be inter-changeable.

Hydrants shall open by turning to the right.

Threads on hose and steamer nozzles shall be National Standard unless otherwise specified. Operating nuts and cap nuts shall conform to National Standard unless otherwise specified.

Bury shall be the measured depth from grade line to bottom of connecting pipe.

C.3 Pipe and Valve Installation

Install valve in closed position and according to manufacturer’s instructions.

Set valve on solid masonry concrete blocking (16 x 8 x 4 inches) with long dimension of block perpendicular to water main and level.

Assemble valve to water main and complete installation according to Section 33 10 13 – Water Main Installation.

Extend bedding and compact up to elevation required to set valve box over valve.

Set valve box on valve box adapter mounted on valve and on compacted bedding material.

Place additional bedding material to a minimum depth of 6 inches around valve box and compact to prevent box or base from shifting.

Extend valve box to sub-grade and place a sheet of polyethylene over shaft prior to inserting cover to seal box.

Adjustment of valve box to temporary and finished grades will be responsibility of grading and paving contractor.

D Measurement

The department will measure Hydrant Assembly by each individual hydrant assembly, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUBER	DESCRIPTION	UNIT
SPV.0060.5260	Hydrant Assembly	EACH

Payment is full compensation for furnishing and installing all materials; excavating, backfilling, and compacting.

243. Remove Hydrant, Item SPV.0060.5265.

A Description

This special provision describes removing existing hydrants and capping hydrant leads.

A.1 General

Perform work under these items according to the details as shown on the plans and the requirements of the City of Wauwatosa.

B Materials

All bedding, cover and backfill materials shall meet City of Wauwatosa Standards and be approved by the City of Wauwatosa.

C Construction

Unless shown otherwise, backfill all water main excavations with granular backfill.

Consolidate all backfill by mechanical compaction per specification 2.6.14(B) of the Standard Specifications for Sewer and Water Construction in Wisconsin. Per specification, the initial compacted lift shall be 2 feet, and the specification shall be modified to read, “each subsequent compacted lift of material shall be 1 foot”. Costs are to be included in the unit price bid for the water main. Settling the trench by flooding the backfill will not be allowed.

D Measurement

The department will measure Removing Hydrant as each individual hydrant, 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
SPV.0060.5265	Remove Hydrant	EACH

Payment is full compensation for providing all materials (and accessories required; for furnishing all excavating, for sheeting and shoring; for capping the hydrant tee, 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.

244. Polyethylene Water Service 1.25-Inch Length 0'-15', Item SPV.0060.5275; Polyethylene Water Service 1.25-Inch Length 15.1'-25', Item SPV.0060.5276; Polyethylene Water Service 1.25-Inch Length 25.1'-45', Item SPV.0060.5277; Polyethylene Water Service 1.5-Inch Length 15.1'-25', Item SPV.0060.5278; Polyethylene Water Service 2-Inch Length 15.1'-25', Item SPV.0060.5279.

A Description

This work includes providing and installing water service line and control valve at locations indicated in the plans, conforming to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and as hereinafter provided.

This special provision includes installing a roadway service box and relocating a curb stop as shown on the plans.

Tracer wire shall be included on all water services.

A.1 General

Perform work under these items according to the details as shown on the plans and the requirements of the City of Wauwatosa.

B Materials

B.1 General

Polyethylene piping shall be according to AWWA C901. All materials shall be manufactured in the USA.

2-inch closed cell high-density polystyrene sheet insulation.

The contractor shall furnish all curb stops, service boxes, fittings, adapters, piping, saddles and service insulators required for installation on this project to the requirements of the City of Wauwatosa.

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

Water services shall be installed at locations indicated in the plans. Typical bury depth of hydrants shall be no less than 6-1/2 feet. If shallower depths are necessary, provide 2-inch closed cell high-density polystyrene sheet insulation and encapsulate all sides of water service with sheet insulation to each end connection.

Connection to existing water main shall be a "wet tap" connection, complete with approved City of Wauwatosa saddle fitting.

Where required and noted "R.O.S." on the plan(s), the contractor shall replace the original service with new water service piping of the same size, but not less than 11/4". The contractor shall furnish and install the polyethylene service piping, corporation stop, and all fittings required. The contractor shall install a new curb stop with the required adapters and fittings in the existing water service piping. The new curb stop shall be set approximately 3 inches from the property line or 18 inches from the building face in the open street or as noted on the plan. The new water service shall extend from the new corporation stop at the water main to the new curb stop. The contractor shall abandon the existing piping no longer in service, remove the old service box and install a new service box with the new curb stop.

The Wauwatosa Water Utility will shut off the water main to be altered and provide temporary hose connections to affected services as required.

The contractor will be responsible for all surveying required to layout and locate the water services.

Provide and install new and approved curb stop and box meeting City of Wauwatosa requirements.

Provide and install new and approved service valve and box meeting City of Wauwatosa requirements.

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.

D Measurement

The department will measure Polyethylene Water Service 1.25-Inch Length 0'-15'; Polyethylene Water Service 1.25-Inch Length 15.1'-25'; Polyethylene Water Service 1.25-Inch Length 25.1'-45'; Polyethylene Water Service 1.5-Inch Length 15.1'-25'; Polyethylene Water Service 2-Inch Length 15.1'-25' as a unit per each provided and installed, 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.0060.5275	Polyethylene Water Service 1.25-Inch Length 0'-15'	EACH
SPV.0060.5276	Polyethylene Water Service 1.25-Inch Length 15.1'-25'	EACH
SPV.0060.5277	Polyethylene Water Service 1.25-Inch Length 25.1'-45'	EACH
SPV.0060.5278	Polyethylene Water Service 1.5-Inch Length 15.1'-25'	EACH
SPV.0060.5279	Polyethylene Water Service 2-Inch Length 15.1'-25'	EACH

Payment is full compensation for furnishing all materials; excavating, backfilling, and compacting.

245. Resilient Wedge Gate Valve 6-Inch, Item SPV.0060.5290; Resilient Wedge Gate Valve 8-Inch, Item SPV.0060.5291; Resilient Wedge Gate Valve 12-Inch, Item SPV.0060.5292; Butterfly Valve 16-Inch, Item SPV.0060.5293; Butterfly Valve 24-Inch, Item SPV.0060.5294.

A Description

This work includes providing and installing valves 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 Resilient Wedge Gate Valves

City of Wauwatosa standard conforming to AWWA Standard C515 covering Resilient Seated Gate Valves for Water Supply Service and be rated for 250 PSIG cold water working pressure.

The valves shall have a ductile iron body, bonnet, and stuffing box. The wedge shall be ductile iron and totally encapsulated with rubber.

The sealing rubber shall be permanently bonded to the wedge per ASTM D429.

Valves shall be supplied with 0-ring seals at all pressure retaining joints. No flat gaskets or conventional type packing shall be allowed on NRS valves.

The valves shall be non-rising stem, opening by turning clockwise, and provided with a 2" square operating nut.

Stems for NRS assemblies shall be copper alloy with integral collars in full compliance with AWWA. Stems shall operate with copper alloy stem nuts independent of wedge and of stem. NRS stems shall have two 0-rings located above thrust collar and two 0-rings below. Stem 0-rings above the thrust collar shall be replaceable with valve fully opened and subjected to full pressure. The stems shall also have one low-torque thrust bearing located above and one below the stem collar to reduce friction during operation.

The body, bonnet and stuffing box shall be fusion-bond epoxy coated, both interior and exterior. Epoxy shall be applied according to AWWA C550 and be NSF 61 Certified.

Each valve shall have maker's name, pressure rating, and year in which it was manufactured cast in the body. Prior to shipment from the factory, each valve shall be tested by hydrostatic pressure equal to the requirements of AWWA C515.

Valves shall be provided with bevel gears (horizontal) or spur gears (vertical) as indicated.

All external bolting materials shall be stainless steel and have hexagonal heads.

Valves shall have component parts cast, machined, assembled, and tested in the USA and shall be Mueller or Waterous.

B.2 Butterfly Valves

Provide butterfly valves according to AWWA Standard AWWA C504, latest revision,

as Class 150B.

The flanged body shall be ASTM A125 cast iron for 150 psi working pressure.

The flanged valves shall be full faced and drilled according to ANSI Standard B16.1, Class 125.

The valve disk shall be Class B cast iron or ductile iron for 150 valves.

Valve seals shall be either seat-on-body or seat-on-disk.

Valve shafts shall be through shafts and be of the stainless steel.

The valve body shall be coated internally with two-part alkyd epoxy conforming to NSF061.

Valves shall be by American, Waterous or Mueller.

This special provision describes the connection of proposed water main to existing water main as shown on the plans. Perform this work according 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.3 Water Valve Box and Valve Box Adapter

Manufacturers: Tyler Union or Sigma.

Covers: Cast iron according to and meeting all applicable terms and provisions of ASTM A-48. All valve boxes when properly installed are to be suitable for use in conjunction with projects utilizing American Association of State and Highway Transportation Officials (AASHTO) standards.

Provide a valve box adapter for the interface between the valve box and the valve. Provide a valve box top, bottom and extension, if required, to fit all bury depths.

B.4 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 Scapa Sealing Tape No. 136.

C Construction

C.1 General

Limit horizontal excavation to sufficient exterior clearance to allow a safe work area for installers.

Where ground water is present in bottom of excavation, remove water by pumping, maintain free of water, and place 12 inches of crushed stone as bedding.

Perform backfilling carefully, bringing fill up evenly on all sides.

C.2 Pipe and Valve Installation

Install valve in closed position and according to manufacturer's instructions.

Set valve on solid masonry concrete blocking (16 x 8 x 4 inches) with long dimension of block perpendicular to water main and level.

Assemble valve to water main and complete installation according to Section 33 10 13 – Water Main Installation.

Extend bedding and compact up to elevation required to set valve box over valve.

Set valve box on valve box adapter mounted on valve and on compacted bedding material.

Place additional bedding material to a minimum depth of 6 inches around valve box and compact to prevent box or base from shifting.

Extend valve box to sub-grade, provide a plumb alignment for the box and place a sheet of polyethylene over shaft prior to inserting cover to seal box.

Adjustment of valve box to temporary and finished grades will be responsibility of grading and paving contractor.

D Measurement

The department will measure Resilient Wedge Gate Valve 6-Inch, Resilient Wedge Gate Valve 8-Inch, Resilient Wedge Gate Valve 12-Inch; Butterfly Valve 16-Inch, Butterfly Valve 24-Inch, by each valve 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.0060.5290	Resilient Wedge Gate Valve 6-Inch	EACH
SPV.0060.5291	Resilient Wedge Gate Valve 8-Inch	EACH
SPV.0060.5292	Resilient Wedge Gate Valve 12-Inch	EACH
SPV.0060.5293	Butterfly Valve 16-Inch	EACH
SPV.0060.5294	Butterfly Valve 24-Inch	EACH

Payment is full compensation for furnishing all materials; excavating, backfilling, and compacting.

246. Sign Support Special Mounting, SPV.0060.6001.

A Description

This special provision describes installing special sign supports per details in contract plans to top or side of concrete barrier wall or on bridge as applicable. Post material shall be according to specification standard spec 634. Mounting to be according to details in contract plans, “Sign Support, Special Mounting.”

B (Vacant)

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.0060.6001	Sign Support Special Mounting	EACH

Payment is full compensation for providing, hauling, and placing posts; for providing all materials, including hardware and anchors; and for all labor, tools, equipment and incidentals necessary to complete this item work.

247. Inlet Covers Type 57, Item SPV.0060.8004.

A Description

The work under these items shall be according 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.

248. 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 (Vacant)

C Construction

Identify all laterals in existing structures or pipes before removal of that structure or pipe. Remove existing lateral pipes to the next engineer accepted joint and replace in-kind with equivalent modern materials such as PVC or concrete. Verify that positive drainage is achieved when connecting lateral. Salvage any structurally sound pipe that was removed if prior approval is granted by the engineer. Connect the existing pipes to the new pipes with the appropriate coupling, concrete collar or by means approved by the engineer. Use concrete masonry for concrete collar conforming to standard spec 501.

D Measurement

The department will measure Reconnect Storm Sewer Laterals by each lateral, connected and approved in the field.

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 performing all work; removing, providing all materials, coring, couplings, concrete collars, and pipe. Any additional pipe or materials required to reconnect the storm sewer laterals shall be considered incidental to this bid item.

sef-501-005 (20170323)

249. Manhole 9-Foot Special, Item SPV.0060.8012; Manhole 10-Foot Special, Item SPV.0060.8013; Manhole 12-Foot Special, Item SPV.0060.8014.

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
SPV.0060.8014	Manhole 12-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 according to standard spec 109.4.

250. 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 608.3 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.

251. 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.

252. Fastening Sewer Access Covers, Item SPV.0060.8020

A Description

This special provision describes sealing, maintaining, and removing sealant for sewer access covers.

B Materials

Furnish preformed butyl rubber based sealant conforming to ASTM C990 Section 6.2. Size the preformed joint sealant to fill the joint to 50% of its annular volume when assembled.

C Construction

Open the sewer access cover, inspect the frame and grate, and remove material that will interfere with the sealant application from the cover and casting. Apply sealant in a continuous ring around the frame without stretching. Knead the ends together with no overlap.

Monitor performance during the project and maintain as needed. Remove sealant after traffic is shifted into its final configuration.

D Measurement

The department will measure Fastening 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.0060.8020	Fastening Sewer Access Covers	EACH

Payment is full compensation for providing and maintaining sealed covers; and removing sealant.

sef-611-015 (20180104)

253. Sawing Concrete Barrier, Item SPV.0060.8022.

A Description

Saw, full depth, existing concrete barrier according to the pertinent requirements of standard spec 690, as shown on the plans, and as hereinafter provided.

B (Vacant)

C Construction

This work includes transverse full depth sawing of the concrete barrier wall, and transverse full depth sawing of the concrete barrier footing extending a distance of 2-feet out perpendicular to the front barrier face.

D Measurement

The department will measure Sawing Concrete Barrier as each individual existing barrier saw cut, 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.0060.8022	Sawing Concrete Barrier	EACH

Payment is full compensation for transverse full-depth sawing of concrete barrier wall and concrete barrier footing; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the contract work.

254. Inlet Covers Type 27-M, Item SPV.0060.8050.

A Description

The work under these items shall be according 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 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	EACH

Payment is full compensation for providing new covers, including frames and grates, and all other required materials; and for installing each cover.

255. 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.

256. Storm Sewer Structure N2173, 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.0060.8505	Storm Sewer Structure N2173	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 according to standard spec 109.4.

257. Storm Sewer Structure N2211, Item SPV.0060.8507.

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.0060.8507	Storm Sewer Structure N2211	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 1 foot above or below elevations shown on the plans will be specified for extra work and paid for according to standard spec 109.4.

258. Pavement Cleanup Project 1060-33-84, Item SPV.0075.0601; Pavement Cleanup Project 1060-34-77, Item SPV.0075.0602.

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.

Use 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 in this special provision 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 all sweeping recommendations in a daily report. Submit reports to the engineer daily, including hourly metered tickets for that day's sweeping activities.

C.2 Pavement Cleanup

Keep all pavements, sidewalks, driveways, curb lanes and gutters within the project boundaries, free of dust and debris generated from all activity under the contract. Keep all pavements, sidewalks, driveways, curb lanes, and gutters adjacent to the project free of dust and debris that are caused by land disturbing, dust generating activities, as defined in the contractor's Dust Control Implementation Plan (DCIP). Provide routine sweeping of all pavements, sidewalks, driveways, curb lanes and gutters on local-street active haul routes as defined in the DCIP or as directed by the engineer. Include the following roadways for routine sweeping:

- STH 100/ N. Mayfair Road (W. Walnut Road to W. North Avenue)
- W. North Avenue (STH 100/ N. Mayfair Road to N. 124th Street)
- W. Burleigh Street (STH 100/ N. Mayfair Road to 124th Street)
- W. Meinecke Avenue (111th Street to 116th Street)
- W. Center Street (STH 100/ N. Mayfair Road to 124th Street)
- N. 112th Street (W. North Avenue to W. Center Street)
- N 113th Street (W. North Avenue to W. Center Street)
- N 116th Street at W. North Avenue
- And all other roadways approved by the department

In addition to routine sweeping, conduct sweepings as the engineer directs or approves, to eliminate 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. Coordinate with engineer to determine deadlines for responding to emergency sweeping requests and cleaning up spillage and material tracked to/from the project.

Skid steers with mechanical power brooms may only be used on sidewalks and driveways whose pavements will not support the weight of a street sweeper, unless otherwise approved by the engineer. Do not dry sweep. Ensure all broomed equipment used for sweeping has a functioning water bar.

D Measurement

The department will measure Pavement Cleanup (Project 1060-33-84, 1060-34-77) by the hour, acceptably completed.

Tickets shall include:

- Date
- Company
- Operator name
- Equipment make/model
- Routes swept
- Total hours.

Total hours shall be to the nearest 0.25 hour that work under this item was performed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0075.0601	Pavement Cleanup Project 1060-33-84	HR
SPV.0075.0602	Pavement Cleanup Project 1060-34-77	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.

sef-104-006 (20170323)

259. Obstructions, Drilled Foundation Shaft, Item SPV.0075.4008; Obstructions, Wall Secant Pile, Item SPV.0075.4048; Obstructions, Wall Tangent Pile, Item SPV.0075.4050; Obstructions, Foundation Drilling, Item SPV.0075.4055.

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, drilled shafts for tangent pile retaining walls, drilled shafts for trial wall panels, 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, wall tangent 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, or the UPRR engineer if applicable. Blasting is not permitted.

When an unknown subsurface obstruction is encountered, notify the engineer or the UPRR engineer if applicable 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, Wall Secant Pile, Wall Tangent Pile, 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.0075.4008	Obstructions Drilled Foundation Shaft	HRS
SPV.0075.4048	Obstructions Wall Secant Pile	HRS
SPV.0075.4050	Obstructions Wall Tangent Pile	HRS
SPV.0075.4055	Obstructions Foundation Drilling	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.

Obstructions removed as part of the Trial Wall Panel special provisions are included in the bid items listed in those special provisions.

260. Obstructions Trenchless Utility Construction, Item SPV.0075.5100.

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 less than an average size of 12-inches, are not considered obstructions, therefore it will be considered 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 rock augers fitted with teeth, drilling buckets, or under reaming tools operating at maximum power, torque, and 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 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 according 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 according 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.0075.5100	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.

261. Removing Concrete Barrier Precast, Item SPV.0090.0001.

A Description

This special provision describes Removing Concrete Barrier Precast according 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.0090.0001	Removing Concrete Barrier Precast	LF

Payment is full compensation for removing concrete barrier temporary precast including any attached temporary glare screen and reflectors.

262. Maintain and Remove Concrete Barrier Temporary Precast, Item SPV.0090.0002.

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 according 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.0090.0002	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.

263. Removing Modular Block Retaining Wall, Item SPV.0090.0003.

A Description

This special provision describes Removing Modular Block Retaining Wall according to the appropriate provisions of standard spec 204, details shown in the plans, and as provided in this special provision.

B (Vacant)

C Construction

Remove all blocks, plastic sheeting, fabric, pipe under drain, reinforcing grid, or tie-backs that abut or underlie the portion of the existing modular block retaining wall to be removed in a manner that will not impede the structural stability or functionality of the portion of the wall to remain. Modify the blocks at the new modular block retaining wall end as directed by the engineer for an adjacent slope down to sidewalk not to exceed 3:1. If the contractor damages the blocks of any portion of the wall to remain through its own operations then the contractor shall replace them at no expense to the department.

D Measurement

The department will measure Removing Modular Block Retaining Wall as each linear foot of removed modular block retaining wall, acceptably completed.

E Payment

Supplement standard spec 204.5 to include the following:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0003	Removing Modular Block Retaining Wall	LF

Payment is full compensation for removing all items that abut or underlie a portion of the modular block retaining wall to be removed and modifying the blocks at the new modular block retaining wall end.

264. Removing Partial Modular Block Retaining Wall, Item SPV.0090.0004.

A Description

This special provision describes Removing Partial Modular Block Retaining Wall according to the appropriate provisions of standard spec 204, details shown in the plans, and as provided in this special provision.

B (Vacant)

C Construction

Remove the top cap block and first two block courses of the modular block retaining wall, unless directed otherwise by the engineer. Do not to disturb the modular block wall reinforcing straps.

D Measurement

The department will measure Removing Partial Modular Block Retaining Wall, for each linear foot of partially removed modular block wall, acceptably completed.

E Payment

Supplement standard spec 204.5 to include the following:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0004	Removing Partial Modular Block Retaining Wall	LF

Payment is full compensation for removing top cap block and block courses.

265. Concrete Curb & Gutter 31-Inch Integral, Item SPV.0090.0101.

A Description

This special provision describes constructing Concrete Curb and Gutter 31-Inch according to pertinent requirements of standard spec 601, construction details, and plan details.

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 as specified in standard spec 601.3.

D Measurement

The department will measure Concrete Curb and Gutter 31-Inch Integral 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.0090.0101	Concrete Curb and Gutter 31-Inch Integral	LF

Payment is full compensation for preparing the foundation; all special construction required at driveway entrances, alley 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 hand forming or sawing contraction joints.

266. Concrete Gutter 42-Inch, Item SPV.0090.0102; Concrete Gutter 66-Inch, Item SPV.0090.0103.

A Description

This Perform this work according 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 according to standard spec 601.3. Warp gutter slope to match at inlet cover locations.

D Measurement

The department will measure Concrete Gutter (Type) by the linear foot, acceptably completed, measured along the flow line of the gutter.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0102	Concrete Gutter 42-Inch	LF
SPV.0090.0103	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.

267. Concrete Barrier Type S42C Special, Item SPV.0090.0105.

A Description

This special provision describes constructing Concrete Barrier Type S42C Special according to pertinent requirements of standard spec 603, construction details, and plan details.

B Materials

Use materials as described in the construction detail shown in the plans and as described in standard spec 603.2.

C Construction

Perform work as specified in standard spec 603.3.

D Measurement

The department will measure Concrete Barrier Type S42C 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 item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0105	Concrete Barrier Type S42C Special	LF

Payment is full compensation conforming to standard spec 603.5.2.

268. Galvanized Pipe Railing, Item SPV.0090.0110.

A Description

This special provision describes This special provision describes fabricating, galvanizing, and installing railing in accordance to standard specs 506 and 513 and the plan details, as directed by the engineer, and as hereinafter provided.

B (Vacant)

C (Vacant)

D Measurement

The department will measure Galvanized Pipe Railing by the linear foot, along the top of rail, 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.0090.0110	Galvanized Pipe Railing	LF

Payment is full compensation for fabricating, galvanizing, transporting, and installing the railing, including any touch-up and repairs.

269. Pipe Underdrain 6-Inch Special, Item SPV.0090.0126; Pipe Underdrain 10-Inch Special, Item SPV.0090.0127.

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 spec 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 (Size) 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
SPV.0090.0127	Pipe Underdrain 10-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

270. Heavy Duty Silt Fence, Item SPV.0090.0301.

A Description

This special provision describes the delivery, installation, maintenance and removal of Heavy Duty Silt Fence. Install fence as directed by the engineer. Do not remove fence until directed by the engineer. If so directed by the engineer, remove silt at no additional costs. Silt shall be removed before the removal of the fence.

B Materials

Provide Heavy Duty Silt Fence consisting of a composite of woven wire fence fabric, posts, geotextile, sand bags and fasteners to be assembled by the contractor. Woven wire fence fabric shall be a standard field fence type a minimum of 4 feet high, a maximum mesh spacing of 6-inches and minimum 14-$^{1}/_{2}$ gauge wire.

Provide “studded tee” or “U” type metal posts with a minimum length of 8 feet –3 inches and a minimum weight of 1.3 lb/ft.

Provide geotextile fabric meeting the following requirements

Property	Unit	Test Method	Minimum Average Roll Value
Grab Tensile Strength	LB.	ASTM D4632	380
Grab Tensile Elongation	%	ASTM D4632	50
Puncture Strength	LB.	ASTM D4833	240
Trapezoid Tear Strength	LB.	ASTM D4533	145
Apparent Opening Size	U.S. Standard Sieve	ASTM D4751	170 (0.09 mm)
Permittivity	sec^{-1}	ASTM D4491	0.7
Water Flow Rate	$Gal/min/ft^2$	ASTM D4491	50
UV Resistance after 500 hours	% strength retained	ASTM D4355	70

Furnish a manufacturer’s Certified Report of Test or Analysis that the geotextile fabric delivered for use in the work meets the above requirements to the engineer at least 15 days prior to use in the work. Provide geotextile fabric bearing markings to clearly identify it with the applicable test report furnished to the engineer.

Supply material in 15’9” wide rolls and cut in half.

C Construction

Install the Heavy Duty Silt Fence as directed by the engineer. Space ties and anchors to adequately resist wave action.

D Measurement

The department will measure Heavy Duty Silt Fence by the linear foot along the fence, 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.0090.0301	Heavy Duty Silt Fence	LF

Payment is full compensation for all furnishing, assembling, erecting, maintaining, and removing the silt fence.

271. Marking Contrast Epoxy 4-inch, Item SPV.0090.0400; Marking Contrast Epoxy 8-inch, Item SPV.0090.0401.

A Description

This special provision describes applying contrast epoxy marking conforming to standard spec 646, as the plans show, and as follows.

B Materials

Furnish epoxy pavement marking materials conforming of standard spec 646.2.

C Construction

- For 4-inch: apply two 1 ½-inch wide black epoxy lines with a 4-inch separation between the two black lines for the first pass, followed by a 4-inch wide white epoxy line second pass, for a total width of 7 inches. Apply epoxy pavement marking conforming to standard spec 646.3.
- For 8-inch: apply two 1 ½-inch wide black epoxy lines with a 8-inch separation between the two black lines for the first pass, followed by a 8-inch wide white epoxy line second pass, for a total width of 11 inches. Apply epoxy pavement marking conforming to standard spec 646.3.

D Measurement

The department will measure Marking Contrast Epoxy 4-Inch Special by the linear foot, acceptably completed, measured once as the length of the centerline of the completed installation.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0400	Marking Contrast Epoxy 4-Inch	LF
SPV.0090.0401	Marking Contrast Epoxy 8-Inch	LF

Payment is full compensation for providing replacement marking.

272. Remove Pavement Marking 12-Inch, Item SPV.0090.0405.

A Description

Complete removal of markings in accordance with specification section 646.3.4 except as modified herein.

B Materials

Provide necessary materials to remove the marking completely.

C Construction

The removal shall be to the satisfaction of the engineer.

D Measurement

The department will measure Remove Pavement Marking 12-Inch

E Payment

The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0405	Remove Pavement Marking 12-Inch	LF

Payment is full compensation for removing pavement marking.

273. Remove Grooved in Pavement Marking Thermoplastic Stop Bar, Item SPV.0090.0410.

A Description

This special provision describes removing grooved thermoplastic in accordance with specification section 646.3.1.4 and as herein provided

B Materials

Provide necessary materials to remove the marking completely.

C Construction

Remove the markings completely

D Measurement

The department will measure Remove Grooved in Pavement Marking Thermoplastic for complete removal.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0410	Remove Grooved in Pavement Marking Thermoplastic Stop Bar	LF

Payment is full compensation for removing pavement marking.

274. Remove Pavement Marking Grooved Contrast Tape 4-Inch, Items SPV.0090.0414; Remove Pavement Marking Grooved Contrast Tape 8-Inch, Item SPV.0090.0415.

A Description

This special provision describes removing grooved wet reflective tape in accordance with standard spec 646.3.1.4 and as herein provided

B Materials

Provide necessary materials to remove the marking completely.

C Construction

Remove the markings completely. Use a high-pressure air blower to clean the groove.

D Measurement

The department will measure Remove Pavement Marking Grooved Tape for complete removal.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0414	Remove Pavement Marking Grooved Contrast Tape 4-Inch	LF
SPV.0090.0415	Remove Pavement Marking Grooved Contrast Tape 8-Inch	LF

Payment is full compensation for removing pavement marking.

275. Salvage Temporary Precast Concrete Barrier Left In Place, Item SPV.0090.0600.

A Description

This special provision describes salvaging and delivering temporary precast concrete barrier left in place according to standard spec 614 and as hereinafter provided.

B (Vacant)

C Construction

Salvage the temporary precast concrete barrier left in place according to standard spec 614.3.9.

Remove and stockpile temporary precast concrete barrier left in place at an on-site location determined by the engineer. The temporary precast concrete barrier left in place shall be undamaged and in good working order as approved by the engineer. Give two days advance notice to Racine County, Milwaukee County, Walworth County, and Washington County before starting the salvaging work to coordinate delivery arrangements. For temporary precast concrete barrier being delivered to Racine County, contact Dave Prott, Racine County Public Works, 14119 Washington Avenue, Sturtevant, WI 53105, at (262) 886-8440.

For temporary precast concrete barrier being delivered to Milwaukee County, contact Kevin Kent, Milwaukee County, 10320 W Watertown Plank Road, Milwaukee, WI 53224 at (414) 454-4100. For temporary precast concrete barrier being delivered to Walworth County, contact David Woodhouse, Walworth County, W4097 CTH-NN, Elkhorn, WI 53121 at (262) 741-3112. For temporary precast concrete barrier being delivered to Washington County, contact Kellie Boone, Washington County, 3000 Hwy PV, West Bend, WI 53095 at (262) 677-5060.

D Measurement

The department will measure Salvage Temporary Precast Concrete Barrier Left In Place 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.0090.0600	Salvage Temporary Precast Concrete Barrier Left In Place	LF

Payment is full compensation for salvaging and delivering the temporary precast concrete barrier.

276. Remove and Dispose of UPRR Track, Item SPV.0090.0800.

A Description

Remove and dispose from Union Pacific Railroad (UPRR) property all UPRR track that the UPRR severs from its operated track. The severed UPRR track includes continuous welded rail (CWR) steel track material, railroad track ties, and fasteners. Ties may be whole or in pieces, and may be of scrap, landscape, or relay quality.

B (Vacant)

C Construction

UPRR will remove some ties from existing track beds where tracks are shifted by UPRR and leave the ties along the grade for recovery by the contractor. UPRR will also sever other tracks and leave the tracks for complete dismantling by the contractor.

Dismantle the severed tracks and ties and dispose of all material from UPRR property and the project site in compliance with all federal, state and local laws and regulations, exclusive of ballast. The contractor may not dispose of tracks and ties on UPRR right-of-way or on the project site. 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 of at a licensed disposal facility. Costs associated with their handling and disposal are incidental to the project.

D Measurement

The department will measure Remove and Dispose of UPRR Track in length by the linear foot of track acceptably removed and disposed. A linear foot of track includes two parallel rails, the appurtenant fastenings, and any underlying ties, exclusive of ballast. The engineer will measure the track in place prior to dismantling by the contractor, or by the linear foot of rail in stockpiles divided by two.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0800	Remove and Dispose of UPRR Track	LF

Payment is full compensation for dismantling track; removing rail, ties, and other appurtenances such as tie plates, compensation bars, insulated joints, rail anchors, spikes, and other steel track material from the railroad grade; obtaining any permits required and paying for all costs associated with the proper disposal of rail, ties and other appurtenances.

277. Construct 136LB ISHH CWR on Wood Ties, Item SPV.0090.0805.

A Description

Construct 136lb ISHH continuous welded rail (CWR) on wood ties outside UPRR designated 13 foot clear zones as indicated in the plans. Note that sections of the east track to be installed by UPRR within the clear zone for the first track shift, and sections of the west track to be installed by UPRR within the clear zone for the second track shift, are built by the contractor offline and outside of the clear zone.

B Materials

Provide all materials for contractor activities, including Compromise Transition Rail 136 LB. to 115 LB or Transition Rail 136 LB. to 112 LB., as indicated on UPRR standard drawing 0947B at all ends of the new double mainline tracks outside of the 13' clear zone indicated in the plans. All track materials, including ballast and subballast, shall be according to UPRR General Conditions and Specifications sections 34 11 10 Railroad Track Construction Part 2 - Track Material, and 34 11 27 Subballast Part 2 - Products. Subballast and ballast materials shall comply with the gradations criteria indicated in UPRR standard drawing 0010E.

C Construction

C.1 General

Construction shall be according to UPRR General Conditions and Specifications Parts 3 - Execution of sections 34 11 10 and 34 11 27. Additional requirements are as follows:

1. Contractor shall supply joint bars and bolts for temp rail connections.
2. Contractor shall build offline, as detailed in the plans, sections of the east track for UPRR to install within the clear zones during the first track shift and sections of the west track for UPRR to install within the clear zones during the second track shift. Coordinate the staging area with UPRR for these sections of track.
3. Contractor shall locate and construct the compromise transition rails in the general locations outlined on the plans and conforming to the requirements indicated in UPRR standard drawing 0947B.

C.2 Rail Laying Temperature

Lay new CWR to the designated rail laying temperature for the subdivision. Confirm this in writing with the UPRR engineer and the engineer. Ensure that rails are installed at a temperature that is greater than or equal to the designated rail laying temperature for the subdivision and do not exceed a rail laying temperature that is 10 degrees F above the rail laying temperature.

EXAMPLE: Rail laying temperature for a subdivision is 100 degrees F. If the rail laying temperature did not fall into this threshold of $\geq$ 100 degrees F $\leq$ 110 degrees F, it must be readjusted.

Measure rail neutral temperature with Vertical Rail Stiffness Equipment (VERSE) at least every 1440 feet. (When rail is in compression or above the above the rail neutral temperature the VERSE cannot be used. VERSE can only be used for tangent track and curves that are up to 2 degrees. VERSE measurement cannot be taken when it is closer than 100 ft. from any switch or crossing. VERSE measurement cannot be taken if the lifted length of rail contains joints or different rail sections.)

D Measurement

The department will measure Construct 136LB ISHH CWR on Wood Ties by the linear foot. A linear foot of track includes two parallel rails, the appurtenant fastenings, ties, ballast and subballast. The engineer will measure the length of finished constructed track outside the designated 13 foot clear zones.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0805	Construct 136LB ISHH CWR on Wood Ties	LF

Payment is full compensation for furnishing, unloading and placing rail and other appurtenances such as wood ties, plates and fasteners; properly assembling track to correct elevation and temperature criteria, welding rail; furnishing, spreading, placing and testing ballast and subballast.

278. Construct Double Inside Guard Rail, Item SPV.0090.0810.

A Description

Construct double inside guard rail for ballast deck bridges on wood ties per UPRR standard drawing.

B Materials

Provide all materials for contractor activities.

C Construction

Construction shall be according to UPRR standard drawing 4015G, UPRR track construction specification section 02854 Part 3 - Execution in Appendix A.

D Measurement

The department will measure Construct Double Inside Guard Rail by the linear foot. A linear foot of Double Inside Guard Rail includes second hand rail and frogs, the appurtenant fastenings, tie plates, joint bars, and anchors. The engineer will measure the length of finished double inside guard rail designated in the plans from end point to end point.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0810	Construct Double Inside Guard Rail	LF

Payment is full compensation for unloading and placing rails and other appurtenances such as plates, frogs and fasteners; properly assembling guard rail.

279. Fence Temporary 6-Foot, Item SPV.0090.0900.

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, according 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.0090.0900	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.

280. Glare Screens Temporary, Item SPV.0090.0910.

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 according 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.0090.0910	Glare Screens Temporary	LF

Payment is full compensation for furnishing, installing, maintaining and removing the Glare Screens Temporary.

281. Concrete Barrier Temporary Precast Anchoring, Item SPV.0090.0920.

A Description

This special provision describes anchoring temporary concrete barrier. Perform this work according to applicable portions of standard spec 603 and as hereinafter provided.

B (Vacant)

C Construction

Perform this work according to 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.0090.0920	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.

282. Concrete Barrier Temporary Precast Anchored on Bridge, Item SPV.0090.0925.

A Description

This special provision describes anchoring temporary concrete barrier on existing bridge decks. Perform this work according to applicable portions of standard spec 603, the plans, and as hereinafter provided.

B Materials

Provide barrier materials according to applicable portions of standard spec 603.2.

For the anchoring system, provide all miscellaneous mounting hardware according to 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 according to 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.0090.0925	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.

283. Cable Aerial Aluminum 6 AWG Triplex, Item SPV.0090.1001; Cable Aerial Aluminum 4 AWG Triplex, Item SPV.0090.1002; Cable Aerial Aluminum 2 AWG Triplex, Item SPV.0090.1003.

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 Triplex; Cable Aerial Aluminum 4 AWG Triplex; and Cable Aerial Aluminum 2 AWG Triplex 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.0090.1001	Cable Aerial Aluminum 6 AWG Triplex	LF
SPV.0090.1002	Cable Aerial Aluminum 4 AWG Triplex	LF
SPV.0090.1003	Cable Aerial Aluminum 2 AWG Triplex	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.

284. Piling Steel HP 14-Inch X 89 LB, Item SPV.0090.4008; Piling Steel HP 14-Inch X 117 LB, Item SPV.0090.4009.

A Description

This work consists of furnishing and installing steel piling according to standard spec 550, as shown on the plans, and as hereinafter provided.

B Materials

All materials shall conform to standard spec 550.2 except as modified herein.

C Construction

All construction methods shall conform to standard spec 550.3.

D Measurement

The department will measure Piling Steel pay items by the linear foot, acceptably completed according to standard spec 550.4(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.0090.4008	Piling Steel HP 14-Inch X 89 LB	LF
SPV.0090.4009	Piling Steel HP 14-Inch X 117 LB	LF

Payment will be made according to standard spec 550.5.2.

285. Drilled Foundation Shaft 59.06-Inch, Item SPV.0090.4028.

A Description

This special provision describes installing drilled foundation shafts for bridge foundations as shown on the plans.

Do not start work on any drilled foundation shafts until acceptance of the Drilling Contractor Qualification submittal, successful completion and acceptance of the Trial Wall Panel Secant Pile and the acceptance of the Drilled Foundation Shaft Installation Plan.

A.1 Qualifications of the Contractor

A.1.1 Drilling Contractor Qualification Submittal

Submit the drilling contractor's qualifications, staff experience records, and equipment cut sheets and descriptions that will perform the work in this special provision at the preconstruction meeting or 21 calendar days prior to the start of drilled shaft construction, whichever date is earlier. Note that the contractor qualification submittal for this special provision may be different than, or may encompass the requirements of, that indicated in the "Wall Secant Pile 59.06-Inch" special provision. The engineer will accept or reject the drilling contractor's qualifications, staff experience records, and equipment descriptions within 7 calendar days after receipt of the submission.

The drilling contractor performing the work described in these special provisions must have drilled foundation shaft project(s) successfully completed similar to those that the plans show using equipment meeting the requirements in subsection B.2 within the last five years. Submit a list outlining the drilling contractor's experience on at least five projects where they have successfully completed drilled foundation shaft construction, including one project completed within the last five years. A separate shaft project is defined as a project with at least 120 linear feet of total shaft length. Include in the project experience at least one project completed in soil and groundwater conditions similar to that anticipated for this project. Include in the project experience advancing drilled shafts with a shaft size at least as large as the plans show to a depth of at least 30 feet below the original ground surface. Show in at least one project evidence of permanence with a five-year minimum age. Include in the project experience documentation for each project a brief project description, detail the size of the shafts, construction methods used during installation, methods used for shaft 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.

A.1.2 Staff Experience

Submit contractor staff experience records of the on-site engineer, on-site supervisors, crew chiefs and drill operators, who will be assigned to the project. Provide for each staff record a summary of each individual's experience that is complete enough for the engineer to determine whether each individual has satisfied the following qualifications. Do not use consultants or manufacturer's representatives in order to meet the requirements of this section.

- On-site engineer - Assign an individual as principal in charge and the contractor's main contact who has at least five years of drilled shaft experience, at least one year of which is as an employee of the contractor in good standing, and who has completed at least one successful drilled foundation shaft project using a shaft size at least as large as the plans show.
- On-site supervisor - Assign an individual to supervise the work who has at least five years of drilled shaft experience, at least one year of which is as an employee of the contractor in good standing, and who has completed at least three successful drilled foundation shaft projects using shaft sizes at least as large as the plans show. Include at least one project completed in soil and groundwater conditions similar to those anticipated for this project.
- Crew chiefs and drill operators - Assign crew chiefs and drill operators who have at least five years of drilled shaft experience using equipment meeting the requirements in subsection B.2, at least one year of which is as an employee of the contractor in good standing. Include at least one project completed in soil and groundwater conditions similar to those anticipated for this project.

List, as a minimum for each of the above individuals, three references of owners or engineers familiar with their work and provide address, phone, and e-mail contact information for each reference.

A.1.3 Equipment Requirements

Submit equipment cut sheets and descriptions to perform the work in this special provision that meet the requirements in subsection B.2.

A.2 Substitutions

The contractor may submit his own organization, staff and equipment to fulfill the requirements of subsections A.1.1, A.1.2, and A.1.3, as the drilling contractor or he may sublet to subcontractor. However, the organization approved that fulfills the requirements of subsection A.1.1 shall be the organization that performs the work in this special provision.

Request in writing to the engineer to provide substitute drilling contractor, staff or equipment not identified in the contractor's accepted drilling contractor qualification submittal. Substitute drilling contractor, staff or equipment must be equivalently or better qualified as determined by the engineer. Provide the experience and qualification information for the proposed substitute drilling contractor, staff or equipment as was originally provided in the drilling contractor's qualification submittal. The substitute drilling contractor, staff or equipment will not be permitted to start or continue any drilled foundation shaft work until the engineer confirms their qualifications and accepts the proposed drilling contractor, staff or equipment to work on the project.

Expect suspension by the engineer of drilled foundation shaft work if the contractor substitutes unqualified drilling contractor for accepted drilling contractor, unqualified personnel for accepted personnel, or unqualified equipment for accepted equipment, during construction. If work is suspended due to the substitution of unqualified drilling contractor, personnel, or equipment, 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, the stricter requirement shall apply unless otherwise accepted by the engineer and the UPRR 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 (including bedrock), 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, and the UPRR engineer's if applicable, 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, and the UPRR engineer if applicable, 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.4 Temporary Working Surface

Fill material, if required, to create a working surface for construction can be any suitable material approved by the engineer, and the UPRR engineer if applicable, 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.

Furnish neat cement grout for filling the access tubes at the completion of the CSL tests. Use grout that is a homogeneous mixture of water and Portland cement Type I/II or Type 1 L (MS). Do not exceed a water-cement ratio of 0.45. Provide grout with an unconfined compressive strength equal to the required compressive strength of the drilled shaft at 28 days when tested in accordance with ASTM C 1107.

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 and the UPRR engineer for review. The engineer and the UPRR engineer will accept the plan as submitted or return the plan with requested revisions. The engineer’s and the UPRR engineer’s initial acceptance of the submitted plan is considered preliminary with final acceptance pending the successful completion and acceptance of the Trial Wall Panel Secant Pile included in the contract. Do not start any work on production drilled foundation shaft installations until after the successful installation of the Trial Wall Panel Secant Pile and the engineer and the UPRR engineer provides final acceptance of 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 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.

The contractor is encouraged to consider rock core drilling described in subsection C.3.6.8 prior to excavation of shafts socketed into rock. Account for rock variability described in the geotechnical report and construction schedule concerns in making this determination.

C.1.3 Submittals

The Drilled Foundation 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. **Methods of Handling and Disposal of Spoil Excavation, Waste Slurry, Waste Concrete, and Drilled Shaft Cutoffs**. Present sufficient details to the engineer, and the UPRR engineer if applicable, 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.

n. **Other Information** requested on the plans or by the engineer and the UPRR engineer.

o. **Reinforcing Steel Assembly and Installation Plan.** For shafts with a 4'-6" minimum nominal diameter and 40'-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 7 calendar days after receipt of the Drilled Foundation

Shaft Installation Plan, the engineer, and the UPRR engineer if applicable, 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, and the UPRR engineer if applicable, will provide a written notice of preliminary acceptance or rejection of contractor's resubmitted Drilled Foundation Shaft Installation Plan within 7 calendar days after its receipt. The engineer, and the UPRR engineer if applicable, will provide final acceptance of the Drilled Foundation Shaft Installation Plan after the successful completion of the Trial Wall Panel Secant Pile 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, and the UPRR engineer if applicable, has granted preliminary acceptance, no changes to the plan can be made without written consent of the engineer and the UPRR engineer.

C.2 Trial Wall Panel Secant Pile

After the Drilled Foundation Shaft Installation Plan has been preliminarily accepted, construct consecutive drilled shafts forming a non-production secant pile trial wall panel using the same crews and equipment that will be performing the drilled foundation shaft production work. Construct in accordance to the Trial Wall Panel Secant Pile special provision and adhere to and demonstrate the adequacy of the accepted Drilled Foundation Shaft Installation Plan.

Construction of the Trial Wall Panel Secant Pile 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. Perform all testing that will be required for production shafts as described elsewhere in the special provisions. With approval of the UPRR engineer if applicable, and 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 Wall Panel Secant Pile, the UPRR engineer if applicable, and 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 wall panel secant pile 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 Wall Panel Secant Pile. 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 details of rock socket construction, 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, and the UPRR engineer if applicable, 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, and the UPRR engineer if applicable, 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 and the UPRR engineer within 24 hours of that day's work being completed. The engineer and the UPRR engineer will review and agree to the daily record form format before drilled shaft work commences. Incorporate any

comments by the engineer and the UPRR 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 and the UPRR engineer. Submit to the engineer and the UPRR 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 and the UPRR engineer. The use of slurry without casing is not permitted. Full depth temporary casing shall be installed 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 installation method techniques described in subsection C.3.5.4 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 that maintains a sufficient head of not less than 5 feet, and maintains 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, not less than 5 feet, and 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.

C.3.6 Excavations

C.3.6.1 General

Excavations required for the drilled foundation shafts shall be performed through whatever materials are encountered to the dimensions and elevations shown in the plans, or as directed by the engineer, and the UPRR engineer if applicable. 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/rock-cores samples and their particular elevations, rock sockets and their elevation, bells plus their size and elevations, and all other information relevant to the excavation process that will assist the engineer and the UPRR 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 and the UPRR 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, and the UPRR engineer if applicable. 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 place 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, and the UPRR engineer, if applicable. 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 maximum 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 maximum 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, and the UPRR engineer if applicable. 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, and the UPRR engineer if applicable. Determine dimensions, alignment, and final depth of the drilled shafts after final cleaning. When applicable, provide visual confirmation with a camera or safe access and egress to the engineer, and the UPRR engineer if

applicable, 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, and the UPRR engineer if applicable. The cleanliness and the bearing surface of the drilled shafts will be evaluated and accepted by the engineer, and the UPRR engineer if applicable. Unless the engineer or the UPRR engineer specify 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 Test Core

At each drilled shaft, once the excavation is completed to the required minimum shaft embedment, clean the drilled shaft of any mud, loose soils and rock. Level the shaft bottom and eliminate any protuberance of rock into the limits of the shaft. Collect a test core of the rock (beginning at the drilled shaft base level) with a core diameter of not less than 2.125-inches (NQ core) and core length of not less than 10 feet and according to ASTM D2113.

The department will verify that this rock core has a recovery of at least 50 percent throughout the length cored. If the core does not meet the above requirements, extend the core as directed by the engineer, or the UPRR engineer, if applicable. Subsequently, extend the drilled shaft embedment to the engineer-directed, or UPRR engineer-directed, if applicable, level.

Rock core drilling may be performed prior to excavation of the drilled shaft provided it is extended to the necessary depths and meets the recovery requirements outlined above or as directed by the engineer, or the UPRR engineer if applicable. The contractor is encouraged to review the geotechnical report listed in subsection C.1.2 in order to make this determination.

After the shaft bearing level is established by the engineer, immediately grout the test core hole.

C.3.6.9 Record Information

Provide to the department the drilled shaft excavation records and report any unusual observation to the engineer and the UPRR 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 and the UPRR 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 59.06-inch diameter shaft shall have 7 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 CSL Access Tube Installation

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

Securely 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 the exterior of the cage when accepted by the engineer, and the UPRR engineer if applicable, 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.3.9 Concrete Placement

C.3.9.1 General

Do not prime pump within the drilled shaft. 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 Drilled Shafts special provisions, the standard specifications and these special provisions. Record the actual volume of concrete placed against the theoretical volume vs depth at depth intervals not exceeding the shaft diameter.

C.3.9.2 Concrete Placement Time

Ensure excavation inspection occurs no later than 24 hours after excavation is complete. Place concrete within three hours after excavation inspection and approval unless otherwise directed by the engineer, and the UPRR engineer if applicable. If the concrete is not placed within this time frame, the excavation must be re-inspected and accepted by the engineer, and the UPRR engineer if applicable, prior to concrete placement.

C.3.9.3 Concrete Placement by Free Fall

Concrete placement within 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 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.3.9.6 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. Account for room and access requirements when cut-off level is below grade to adequately perform this task and protect adjacent ground from caving in.

C.3.10 Construction Tolerances for Individual Shafts

Drilled foundation shaft excavations or completed drilled foundation shafts constructed out of the tolerance will not be accepted. The contractor is responsible for correcting to the satisfaction of the engineer and the UPRR 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 and the UPRR 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. Ensure the drilled shaft casing avoids conflicting with the reinforced rebar cage in adjacent shafts by ensuring that the provisions of C.3.10.b are never violated. If these provisions are violated, rectify the shaft in accordance with subsection C.3.12.

f. 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.3.11 Non Destructive Testing Program

Perform CSL, TIP and PIT testing as specified elsewhere in the special provisions, and as directed by the engineer and the UPRR engineer, if applicable.

C.3.12 Acceptance for Constructed Drilled Shafts

C.3.12.1 General

Any drilled foundation shafts that are not constructed and installed in accordance to these special provisions will be rejected by the engineer or the UPRR engineer. Rejected shafts shall be replaced or rectified by the contractor using methods and procedures subject to the acceptance of the engineer and the UPRR engineer before beginning replacement or rectification. 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 and the UPRR 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.3.12.2 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 and the UPRR 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 and the UPRR 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 shafts 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 shafts for which the mix design has been altered without the acceptance of the engineer and the UPRR engineer, including the unauthorized addition of water to a mix design to bring it to a certain slump.

i. Drilled foundation shafts 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 and the UPRR engineer's acceptance.

j. Drilled foundation shafts constructed with concrete not meeting the minimum 28-day compressive strength requirement shown on the plans.

C.3.12.3 Based on the CSL, TIP, or PIT Tests

Reports for the various tests performed elsewhere in the special provisions will be reviewed by the engineer and the UPRR engineer. If the reports indicate significant anomalies or defects, the engineer or the UPRR 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 or the UPRR 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 or the UPRR engineer. Upon rejection of the shaft(s), submit a remedial action plan to the engineer and the UPRR 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 and the UPRR 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 or the UPRR 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 or the UPRR 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 or the UPRR engineer will result in a re-evaluation of the contractor's installation procedure and, depending on the frequency and type of defect, the engineer or the UPRR 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.0090.4028	Drilled Foundation Shaft 59.06-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, 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 furnishing, 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.

286. Foundation Drilling, Item SPV.0090.4035.

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 according to pertinent parts of the standard specifications, the plans, and these special provisions.

B (Vacant)

C Construction

C.1 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 according to the rules and regulations of the local, state, and federal governing authorities having jurisdiction over the project site.

C.2 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.

C.3 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.

C.4 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 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.0090.4035	Foundation Drilling	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.

287. Wall Secant Pile 59.06-Inch, Item SPV.0090.4048.

A Description

This special provision describes installing overlapping drilled shafts to form a secant pile retaining wall as shown on the plans.

Do not start work on any production wall secant piles until acceptance of the Drilling Contractor Qualification submittal, successful completion and acceptance of the Trial Wall Panel Secant Pile and the acceptance of the Drilled Foundation Shaft Installation Plan.

A.1 Qualifications of the Contractor

A.1.1 Drilling Contractor Qualification Submittal

Submit the drilling contractor's qualifications, staff experience records, and equipment cut sheets and descriptions that will perform the work in this special provision at the preconstruction meeting or 21 calendar days prior to the start of wall secant pile construction, whichever date is earlier. Note that the contractor qualification submittal for this special provision may be different than, or encompassing the requirements of, that indicated in the "Drilled Foundation Shaft 59.06-Inch" special provision. The engineer will accept or reject the drilling contractor's qualifications, staff experience records, and equipment descriptions within 7 calendar days after receipt of the submission.

The drilling contractor performing the work described in these special provisions must have wall secant pile project(s) successfully completed similar to those that the plans show using equipment meeting the requirements in Section B.2 within the last five years. Submit a list outlining the drilling contractor's 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 three of the five projects must be wall secant or tangent pile wall projects. A separate wall project is defined as a secant or tangent pile wall or walls having a total of at least 3000 square feet of total wall area. Include in the project experience at least one project completed in soil and groundwater conditions similar to that anticipated for this project. Include in the project experience advancing the drilled shafts with a shaft size at least as large as the plans show to a depth of at least 60 feet below the original ground surface. Show in at least one project evidence of permanence with a five-year minimum age. Include in the project experience documentation for each project 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.

A.1.2 Staff Experience

Submit contractor staff experience records of the on-site engineer, on-site supervisors, crew chiefs and drill operators, who will be assigned to the project. Provide for each staff record a summary of each individual's experience that is complete enough for the engineer to determine whether each individual has satisfied the following qualifications. Do not use consultants or manufacturer's representatives in order to meet the requirements of this section.

- On-site engineer - Assign an individual as principal in charge and the contractor's main contact who has at least five years of drilled shaft experience, at least one year of which is as an employee of the contractor in good standing, and who has completed at least one successful secant pile or tangent pile retaining wall project using a shaft size at least as large as the plans show.
- On-site supervisor - Assign an individual to supervise the work who has at least five years of drilled shaft experience, at least one year of which is as an employee of the contractor in good standing, and who has completed at least one successful secant pile or tangent pile retaining wall project using a shaft size at least as large as the plans show. Include at least one project completed in soil and groundwater conditions similar to those anticipated for this project.

- Crew chiefs and drill operators - Assign crew chiefs and drill operators who have at least five years of drilled shaft experience using equipment meeting the requirements in Section B.2, at least one year of which is as an employee of the contractor in good standing, and who has completed at least one successful secant pile or tangent pile retaining wall project using a shaft size at least as large as the plans show. Include at least one project completed in soil and groundwater conditions similar to those anticipated for this project.

List, as a minimum for each of the above individuals, three references of owners or engineers familiar with their work and provide address, phone, and e-mail contact information for each reference.

A.1.3 Equipment Requirements

Submit equipment requirements listed in subsection A.1.3 of the Drilled Foundation Shaft special provision.

A.2 Substitutions

The drilling contractor is allowed substitutions conforming to subsection A.2 of the Drilled Foundation Shaft special provision.

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 (including bedrock), 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, and the UPRR engineer's if applicable, 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, and the UPRR engineer if applicable, 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.4 Temporary Working Surface

Fill material, if required, to create a working surface for construction can be any suitable material approved by the engineer, and the UPRR engineer if applicable, 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.

Furnish neat cement grout for filling the access tubes at the completion of the CSL tests. Use grout that is a homogeneous mixture of water and Portland cement Type I/II or Type 1 L (MS). Do not exceed a water-cement ratio of 0.45. Provide grout with an unconfined compressive strength equal to the required compressive strength of the drilled shaft at 28 days when tested in accordance with ASTM C 1107.

B.7 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 spec 501, 502 and 505 and as hereinafter provided.

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 and the UPRR engineer for review. The engineer and the UPRR engineer will accept the plan as submitted or return the plan with requested revisions. The engineer's and the UPRR engineer's initial acceptance of the submitted plan is considered preliminary with final acceptance pending the successful completion and acceptance of the Trial Wall Panel Secant Pile included in the contract. Do not start any production drilled shaft installation until after the successful installation of the Trial Wall Panel Secant Pile and the engineer and the UPRR engineer provides final acceptance of 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 Drilled Foundation 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. **Methods of Handling and Disposal of Spoil Excavation, Waste Slurry, Waste Concrete, and Drilled Shaft Cutoffs**. Present sufficient details to the engineer, and the UPRR engineer if applicable, 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.

n. **Other Information** requested on the plans or by the engineer and the UPRR engineer.

o. **Reinforcing Steel Assembly and Installation Plan.** For shafts with a 4'-6" minimum nominal diameter and 40'-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.

p. **Details of Guide Wall Design and Installation.** Provide details of required guide wall design and construction.

C.1.4 Acceptance

The department will evaluate the Drilled Foundation Shaft Installation Plan for conformance with the requirements of these special provisions. Within 7 calendar days after receipt of the Drilled Foundation Shaft Installation Plan, the engineer, and the UPRR engineer if applicable, 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, and the UPRR engineer if applicable, will provide a written notice of

preliminary acceptance or rejection of contractor's resubmitted Drilled Foundation Shaft Installation Plan within 7 calendar days after its receipt. The accepted contractor's Drilled Foundation Shaft Installation Plan will become final after the successful completion and acceptance of the Trial Wall Panel Secant Pile 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 and the UPRR engineer has granted preliminary acceptance, no changes to the plan can be made without written consent of the engineer, and the UPRR engineer if applicable.

C.2 Trial Wall Panel Secant Pile

After the Drilled Foundation Shaft Installation Plan has been preliminarily accepted, construct consecutive drilled shafts forming a non-production secant pile trial wall panel using the same crews and equipment that will be performing the drilled shaft production work. Construct in accordance to the Trial Wall Panel Secant Pile special provision and adhere to and demonstrate the adequacy of the accepted Drilled Foundation Shaft Installation Plan.

Construction of the Trial Wall Panel Secant Pile will be used to determine if the contractor's methods, equipment, personnel, and proposed procedures are effective to produce stable drilled shaft excavations and secant pile walls that meet the requirements of these special provisions. Perform all testing that will be required for production shafts as described elsewhere in the special provisions. With approval of the UPRR engineer if applicable, and 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 secant pile wall construction in accordance to these special provisions.

In the event the contractor fails to demonstrate the adequacy of the drilled shaft installation procedure(s) or equipment during construction of the Trial Wall Panel Secant Pile, the UPRR engineer if applicable, and 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 wall panel secant pile 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 Wall Panel Secant Pile. 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, and the UPRR engineer if applicable, 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, and the UPRR engineer if applicable, 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 and the UPRR engineer within 24 hours of that day's work being completed. The engineer and the UPRR engineer will review and agree to the daily record form format before drilled shaft work commences. Incorporate any comments by the engineer and the UPRR 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 and the UPRR engineer. Submit to the engineer and the UPRR 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 and the UPRR engineer. The use of slurry without casing is not permitted. Full depth temporary casing shall be installed 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 installation method techniques described in subsection C.3.5.4 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 that maintains a sufficient head of not less than 5 feet, and maintains 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, not less than 5 feet, and 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.

C.3.6 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.3.7 Excavations

C.3.7.1 General

Excavations required for the secant pile walls shall be performed through whatever materials are encountered to the dimensions and elevations shown in the plans, or as directed by the engineer, and the UPRR engineer if applicable. 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 secant pile wall 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/rock-cores samples and their particular elevations, rock sockets and their elevation, bells plus their size and elevations, and all other information relevant to the excavation process that will assist the engineer and the UPRR 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 and the UPRR engineer.

C.3.7.2 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 secant pile walls are to be installed in conjunction with embankment placement, the secant pile walls shall be constructed after placement of the fill, unless otherwise shown in the plans, or accepted by the engineer, and the UPRR engineer, if applicable. If fill is required to be placed after completion of the secant pile walls, the footing cap shall be done, as closely as possible, after the fill is in place and compacted to final grade leaving only the space necessary for the construction of the cap.

C.3.7.3 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, and the UPRR engineer, if applicable. 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.3.7.4 Templates and Guide Walls

Templates are required for installation of all secant 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.3.7.5 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 maximum 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 maximum 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, and the UPRR engineer if applicable. 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.3.7.6 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 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, and the UPRR engineer if applicable. Determine dimensions, alignment, and final depth of the drilled shafts after final cleaning. When applicable, provide visual confirmation with a camera or safe access and egress to the engineer, and the UPRR engineer if applicable, 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, and the UPRR engineer if applicable. The cleanliness and the bearing surface of the drilled shafts will be evaluated and accepted by the engineer, and the UPRR engineer if applicable. Unless the engineer or the UPRR engineer specify 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 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.3.7.9 Record Information

Provide to the department the drilled shaft excavation records and report any unusual observation to the engineer and the UPRR 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 and the UPRR 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.3.8 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.3.6.6 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 59.06-inch diameter shaft shall have 7 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 CSL Access Tube Installation

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

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 the exterior of the cage when accepted by the engineer, and the UPRR engineer if applicable, 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.3.10 Concrete Placement

C.3.10.1 General

Do not prime pump within the drilled shaft. 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 Drilled Shafts special provisions, the standard specifications and these special provisions. Record the actual volume of concrete placed against the theoretical volume vs depth at depth intervals not exceeding the shaft diameter.

C.3.10.2 Concrete Placement Time

Ensure excavation inspection occurs no later than 24 hours after excavation is complete. Place concrete within three hours after excavation inspection and approval unless otherwise directed by the engineer, and the UPRR engineer if applicable. If the concrete is not placed within this time frame, the excavation must be re-inspected and accepted by the engineer, and the UPRR engineer if applicable, prior to concrete placement.

C.3.10.3 Concrete Placement by Free Fall

Concrete placement within drilled shafts by free fall is not permitted.

C.3.10.4 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.3.10.5 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.3.10.6 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. Account for room and access requirements when cut-off level is below grade to adequately perform this task and protect adjacent ground from caving in.

C.3.10.7 Allowable Seepage Through Secant Pile Walls

Seepage, but not soil migration, is allowed through secant pile walls. Install weep holes and geocomposite wall drains as the plans show.

C.3.11 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 and the UPRR 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 left unfilled.

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. Ensure the drilled shaft casing avoids conflicting with the reinforced rebar cage in adjacent shafts by ensuring that the provisions of C.3.11.b are never violated. If these provisions are violated, rectify the shaft in accordance with subsection C.3.13.

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.3.12 Non Destructive Testing Program

Perform CSL, TIP and PIT testing as specified elsewhere in the special provisions, and as directed by the engineer, and the UPRR engineer if applicable.

C.3.13 Acceptance for Constructed Drilled Shafts

C.3.13.1 General

Any drilled foundation shafts that are not constructed and installed in accordance to these special provisions will be rejected by the engineer or the UPRR engineer. Rejected shafts shall be replaced or rectified by the contractor using methods and procedures subject to the acceptance of the engineer and the UPRR engineer before beginning replacement or rectification. 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 and the UPRR 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 and the UPRR 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 and the UPRR 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 shafts 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 shafts for which the mix design has been altered without the acceptance of the engineer and the UPRR engineer, including the unauthorized addition of water to a mix design to bring it to a certain slump.

i. Drilled foundation shafts 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 and the UPRR engineer’s acceptance.

j. Drilled foundation shafts constructed with concrete not meeting the minimum 28-day compressive strength requirement shown on the plans.

C.3.13.3 Based on the CSL, TIP, or PIT Tests

Reports for the various tests performed elsewhere in the special provisions will be reviewed by the engineer and the UPRR engineer. If the reports indicate significant anomalies or defects, the engineer or the UPRR 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 or the UPRR

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 or the UPRR engineer. Upon rejection of the shaft(s), submit a remedial action plan to the engineer and the UPRR 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 and the UPRR 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 or the UPRR 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 or the UPRR 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 or the UPRR engineer will result in a re-evaluation of the contractor's installation procedure and, depending on the frequency and type of defect, the engineer or the UPRR engineer may require 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.0090.4048	Wall Secant Pile 59.06-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, guide walls, 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; 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; 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 shafts to the dimensions and elevations as shown on the plans, including removal of over pour concrete; and furnishing, 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 the Wall Secant Pile (diameter) pay items will be measured and paid for separately under the bid item, Obstructions Wall Secant Pile, included in the contract.

288. Wall Tangent Pile 36-Inch, Item SPV.0090.4050.

A Description

This special provision describes installing adjacent drilled shafts to form a tangent pile retaining wall as shown on the plans.

A.1 Qualifications of the Contractor

A contractor shall conform to the qualifications listed in subsection A.1 of the Drilled Foundation Shaft 59.06-Inch special provision.

A.2 Staff Substitution

The drilling contractor is allowed staff substitutions conforming to subsection A.2 of the Drilled Foundation Shaft 59.06-Inch special provision.

B Materials

B.1 General

Provide materials conforming to section B of the Drilled Foundation Shaft 59.06-Inch special provision, and as hereinafter provided

B.2 Guide Walls

Provide steel plate template at each tangent 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 according to the requirements of standard spec 501, 502 and 505 and as hereinafter provided.

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 Trial Wall Panel Tangent Pile 36-Inch 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 tangent 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 tangent drilled shafts along the length of tangent 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 tangent 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 all items indicated in subsection C.1.3 of the Drilled Foundation Shaft 59.06-Inch special provision, as well as the following items hereinafter detailed:

a. **Details of Guide Wall Design and Installation.** Provide details of required guide wall design and construction.

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 Trial Wall Panel Tangent Pile 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 Trial Wall Panel Tangent Pile 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 Trial Wall Panel Tangent Pile

After the Drilled Shaft Installation Plan has been preliminarily accepted, construct consecutive drilled shafts forming a non-production tangent pile trial wall panel using the same crews and equipment that will be performing the drilled shaft production work. Construct according to the Trial Wall Panel Tangent Pile 36-Inch special provision and adhere to and demonstrate the adequacy of the accepted Drilled Shaft Installation Plan.

Construction of the Trial Wall Panel Tangent Pile 36-Inch will be used to determine if the contractor's methods, equipment, personnel, and proposed procedures are effective to produce stable drilled shaft excavations and tangent walls that meet the requirements of these special provisions. CSL tests may be performed by the engineer, as part of the evaluation of the trial wall panel. 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 wall construction according to these special provisions.

In the event the contractor fails to demonstrate the adequacy of the drilled shaft installation procedure(s) or equipment during construction of the Trial Wall Panel Tangent Pile 36-Inch, 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 wall panel tangent pile 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 according to the accepted drilled shaft installation plan and as demonstrated during installation of the Trial Wall Panel Tangent Pile 36-Inch. 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.

Carry out the work as detailed in subsection C.3 of the Drilled Foundation Shaft 59.06-Inch special provision and the following subsections hereinafter provided.

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 Excavations

C.3.3.1 Templates and Guide Walls

Templates are required for installation of all tangent 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 tangent pile drilled shafts to aid in achieving specified tolerances for location and verticality of the installed drilled shafts.

C.3.3.2 Obstructions

Handle all obstructions as outlined in subsection C.3.6.4 of the Drill Foundation Shaft 59.06-Inch special provision and as hereinafter provided. 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 Tangent Pile included in the contract.

C.3.4 Concrete Placement

C.3.4.1 General

Place concrete according to subsection C.8 of the Drilled Foundation Shaft 59.06-Inch special provision and as hereinafter provided.

C.3.4.2 Allowable Seepage Through Tangent Pile Walls

Tangent 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 tangent 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 tangent 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.3.5 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 tangent piles. In the case that there is a gap in tangent 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 tangent 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 1-inch gap between the precast concrete wall panels and the face of the shafts, shall be removed at the contractor’s expense. Precast wall panel 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.

D Measurement

The department will measure Wall Tangent Pile 36-Inch 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.0090.4050	Wall Tangent Pile 36-Inch	LF

Payment is full compensation for preparing all submittals, including the Drilled Shaft Installation Plan; 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 or natural 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; 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 shafts to the dimensions and elevations as shown on the plans, including removal of over pour concrete; installing and closing the crosshole logging tubes; and 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 the Wall Tangent Pile 36-Inch pay items will be measured and paid for separately under the bid item, Obstructions Wall Tangent Pile, included in the contract.

289. Handrail B-40-878, Item SPV.0090.4068; Handrail R-40-622, Item SPV.0090.4069; Handrail Temporary, SPV.0090.4088.

A Description

This special provision describes furnishing and installing steel railings identified as handrails on the plans for railroad structures according to standard spec 513, as shown in the plans, and as hereinafter provided.

B Materials

Furnish materials conforming to standard spec 513.2.

Supplement standard spec 513.2.1 with the following.

All materials for railing shall be new stock, free from defects impairing strength, durability and appearance. Galvanize and coat railing assemblies with a two-coat system. Bubbles, blisters and flaking in the coating will be a basis for rejection.

Galvanize all wire rope for permanent applications.

All materials for temporary handrails need not be galvanized, painted or otherwise coated.

B.1 Paint for Galvanized Handrails

Use one of the qualified coating manufacturers and products given in the Approved Products List for Paint Systems for Galvanized Railing. An equivalent system may be used with the written approval of the engineer and the UPRR engineer.

B.2 Color

The finished color for coating system for handrails shall match the color indicated on the plans.

C Construction

Conform to standard spec 513.3, except delete paragraph 513.3.1(6) and replace with the following:

C.1 Galvanizing

Fabricate railings to meet the requirements of ASTM A385. After fabrication, blast clean steel railing assemblies per SSPC-SP6 and galvanize according to ASTM A123. Drill vent holes in members as required to facilitate galvanizing and drainage. Show location and size of vent holes on the shop drawings. Remove all burrs at component edges, corners and at holes and chamfer sharp edges 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 according to AASHTO M 160 prior to blast cleaning. Lumps, projections, globules, or heavy deposits of galvanizing, which will provide surface conditions that when coated will produce unacceptable aesthetic and/or visual qualities, will not be permitted. Water quenching and chromate or other passivating treatments will not be permitted.

C.2 Two Coat System

After galvanizing, coat all exterior surfaces of steel railing assemblies and inside of rail elements at field erection and expansion joints with a two-coat system as hereinafter provided.

Clean all galvanized surfaces to be coated per SSPC-SP1 to remove chlorides, sulfates, zinc salts, oil, dirt, organic matter and other contaminants. Brush blast clean the cleaned surface per SSPC-SP16 to create a slight angular surface profile per manufacturer's recommendation (1 mil minimum, 1.5 mils maximum) for adhesion of the tie coat. Remove wet storage stains prior to blasting per SSPC-SP16. Perform brush blasting at an angle of 30 to 60 degrees to the surface using air pressure no greater than 50 psi, and a soft abrasive such as Garnet. Steel shot and angular iron blasting grit will not be permitted. Brush blast the surface to produce a matte silver appearance. When brush blasting, do not fracture the galvanized finish or remove any dry film thickness. 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 according to standard spec 517.

After cleaning and within 8 hours of blasting, 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 an approved top coat that is resistant to the effects of the sun and is suitable for a marine environment. Furnish tie and top coats of contrasting colors from the same manufacturer.

Ensure that the coating manufacturer reviews the process to be used for surface preparation and application of the coating system with the coating applier. The review shall include a visit to the facility performing the work if requested by the coating manufacturer. Provide written confirmation, from the coating manufacturer to the engineer and the UPRR engineer, that the review has taken place and that issues raised have been addressed before beginning coating work under the contract.

C.3 Shop Drawings

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 coating 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.

C.4 Delivery, Storage and Handling

Deliver material to the site in an undamaged condition. Upon receipt at the job site, thoroughly inspect all materials to ensure that no damage occurred during shipping or handling and conditions of materials is in conformance with these specifications. Handle coated railing according to standard spec 517. If coating is damaged, repair or replace railing assemblies to the approval of the engineer and the UPRR 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 and the UPRR engineer.

C.5 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 and conforming to ASTM A780. If damage is excessive, replace the railing assembly at no additional cost to the owner. Provide the engineer and the UPRR engineer with a copy of the manufacturer's recommended repair procedure and materials before repairing damaged coatings.

D Measurement

The department will measure Handrail (structure) bid items in length by the linear foot for each structure, 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.0090.4068	Handrail B-40-878	LF
SPV.0090.4069	Handrail R-40-622	LF
SPV.0090.4088	Handrail Temporary	LF

Payment for Handrail (structure) bid items is full compensation for providing, fabricating, transporting, and erecting all components of steel handrail as indicated in the plans; 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.

290. Fence Decorative Bridge, Item SPV.0090.4100; Fence Decorative Wall, Item SPV.0090.4105.

A Description

This special provision describes fabricating, galvanizing, polymer coating, painting, delivering and installing decorative fencing on bridge superstructures, wing walls, and retaining walls according 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 according 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 1051 Perimeter Drive, Suite 710 Schaumburg, IL 60173 (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 350 Hanley Industrial St. Louis, MO 63144 (314) 644-1000	Tie	Rustbond Penetrating Sealer FC	1	36
	Top	Carboline 133 LH	4	NA
Wasser Corporation 4118 B Place NW Suite B 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 according 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 according 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, Fence Decorative Wing 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.0090.4100	Fence Decorative Bridge	LF
SPV.0090.4105	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

291. Removing Existing Steel Piling, Item SPV.0090.4200.

A Description

The work includes removing the existing steel piles that are in conflict with proposed new piling for piers. The purpose of this work is to clear the location of an intended new pile so the pile may be driven and installed without interference from an existing steel pile.

B (Vacant)

C Construction

Remove any existing steel piling that is in conflict with proposed piling locations and as shown on the contract plans. An existing steel pile is in conflict with a proposed pile if the timber pile is within 2.5 proposed-pile diameters (center-center spacing) of a proposed pile. One of the following methods of removing shall be used:

Direct Pull: Wrap piling with a choker cable or chain that is attached at the top to a crane. The crane then pulled the piling directly upward, removing the piling from the soil.

Vibratory Excavation: A vibratory hammer that is attached at the top to a crane and to the existing piling will vibrate the piling loose. The crane will then pull the piling directly upward, removing the piling from the soil.

Contractor Proposed: If the contractor chooses to use an alternate method to remove the existing steel piling the contractor shall provide the engineer with a written methodology for his approval.

When an existing steel piling is found to be in conflict with the proposed location of a new piling the contractor shall notify the engineer, and receive his approval on the method of removal that was chosen, prior to beginning any work to remove the steel piling.

D Measurement

The department will measure Removing Existing Steel Piling by the linear foot, acceptably completed. Measurement will be made along the vertical length of the steel piling 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.0090.4200	Removing Existing Steel Piling	LF

Payment is full compensation for removing existing steel piling; and for providing and placing necessary backfill material.

292. Removing Existing Timber Piling, Item SPV.0090.4205.

A Description

This special provision describes removing existing timber piling and includes removing, drilling, or coring through existing timber piles in conflict with proposed new piling for abutments and piers at Structure B-40-793 and B-40-794. The work also includes backfilling the void left after removal with structure backfill. The purpose of this work is to clear the location so the proposed pile may be driven and installed without interference from an existing timber pile.

B (Vacant)

C Construction

Remove any existing timber piling that is in conflict with proposed piling locations. An existing timber pile is in conflict with a proposed pile if the timber pile is within 2.5 proposed-pile diameters (center-center spacing) of a proposed pile. One of the following methods of removal shall be used:

Direct Pull: Wrap piling with a choker cable, chain, or other device attached to a crane. Pull the piling vertically, removing the piling from the soil.

Vibratory Excavation: Attach a vibratory hammer to a crane and to the existing piling. Vibrate the piling loose. Pull the piling vertically and remove the piling from the soil.

Coring: Core through existing timber piles to an elevation that will permit the installation of the proposed pile without interference. Unless directed otherwise, make the diameter of the core hole only as large as required to eliminate the pile conflict.

Contractor Proposed: The contractor may propose, in writing, an alternate method of pile removal.

When an existing pile is found to be in conflict with the proposed piling, the contractor shall notify the engineer, and receive approval on the selected removal method prior to beginning any work to remove the timber piling.

Fill any void remaining after pile removal with structure backfill.

D Measurement

The department will measure Removing Existing Timber Piling in length by the linear foot, acceptably completed. Measurement will be made along the vertical length of the timber piling removed regardless of the method used. If the coring method is used, the contractor and engineer will agree to a cored depth.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.4205	Removing Existing Timber Piling	LF

Payment is full compensation for removing existing timber piling; for providing and placing necessary structure backfill material; and for disposing of all material excavated.

293. Removing Concrete Encased Duct Package, Item SPV.0090.5001.

A Description

This special provision describes completely or partially removing existing utilities and disposing of all resulting materials according 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 Concrete Encased Duct Bank

This item includes removing existing utility concrete encased duct banks varying in size from 2 feet by 2 feet to 3 feet by 3 feet as shown on the plans. Removal of existing utility duct packages not encased in concrete are not included in the item Removing Concrete Encased Duct Bank and are considered incidental to the Excavation Common bid item.

B Materials

Furnish Backfill Granular according to the pertinent requirements of standard spec 209 for use as backfill material as directed by the engineer.

C Construction

Perform work according 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 or concrete encased duct bank 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 according to standard spec 204.3.1.2.

D Measurement

The department will measure Removing Concrete Encased Duct Bank bid item by the linear foot, acceptably completed, measured horizontally to the nearest foot from face to face of bulkheads or plugs along the centerline of the pipe or concrete encased duct bank.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.5001	Removing Concrete Encased Duct Bank	LF

Payment is full compensation for all excavating; for cutting and removing existing utilities; for furnishing any required brick, concrete block, or concrete; for all plugging and bulkheading; for all backfilling; for furnishing, placing, and compacting Backfill Granular; for hauling and disposing of all materials; and for furnishing all labor, tools, equipment, transportation, and incidentals necessary to complete the work according to the contract.

294. Removing Concrete Encased 21-Inch Sewer, Item SPV.0090.5002.

A Description

This special provision describes completely or partially removing existing utilities and disposing of all resulting materials according 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 Concrete Encased 21-Inch Sewer

This item includes removing portions of an existing 21-inch sanitary sewer encased in a concrete tunnel section measuring approximately 48-inches by 48-inches at the locations as indicated on the plans.

B Materials

Furnish Backfill Granular according to the pertinent requirements of standard spec 209 for use as backfill material as directed by the engineer.

C Construction

Perform work according 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 pipe and tunnel section 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 according to standard spec 204.3.1.2. Compact backfill according to standard spec 207.3.6.2.

D Measurement

The department will measure Removing Concrete Encased 21-Inch Sewer bid item 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.0090.5002	Removing Concrete Encased 21-Inch Sewer	LF

Payment is full compensation for all excavating; for cutting and removing existing utilities; for furnishing any required brick, concrete block, or concrete; for all plugging and bulkheading; for all backfilling; for furnishing, placing, and compacting Backfill Granular; for hauling and disposing of all materials.

295. Sanitary Sewer 8-Inch PVC, Item SPV.0090.5101; Sanitary Sewer 10-Inch PVC, Item SPV.0090.5102; Sanitary Sewer 21-Inch PVC, Item SPV.0090.5103.

A Description

Perform work under these items according to the details as shown in the plans and the requirements of the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition.

Notify the Milwaukee Metropolitan Sewerage District (MMSD) and City of Wauwatosa prior to construction at least three business days in advance. Notify, in writing, all businesses and property owners/occupants within the project limits to inform them of the project and to inform them of any temporary sewer service disconnections. Provide and maintain all necessary bypass pumping for sanitary sewer relay.

B Materials

All materials and work required to install the sanitary sewer will conform to the Standard Specifications for Sewer and Water.

B.2 PVC Pipe

The pipe shall be polyvinylchloride Pipe (PVC), ASTM D-3034 SDR-26. All fittings, including bends, shall be of the same material as the proposed sanitary sewer main. Material joining the fitting to the pipe shall be free from cracks and shall adhere tightly to each joining surface.

B.3 Pipe Gaskets

Sanitary sewer pipes shall have rubber gaskets conforming to ASTM F-477.

C Construction

C.1 General

Construct 8-inch, 10-inch, and 21-inch pipe as shown in the plans.

C.2 Laying Of Pipe

C.2.1 Bedding, Cover, Foundation And Backfill Material

All sewer pipe shall be laid in a Standard Section, Class "C" bedding conforming to File No. 3 with modifications as specified in Section 3.2.6(i) for PVC pipe of the Standard Specifications for Sewer and

Water, unless otherwise noted on the plans. Cover material for PVC pipe shall be the same as that specified in the Standard Specifications for Sewer and Water for bedding

Compact granular backfill mechanically to a minimum of 95% maximum density as determined by ASTM D1557, Method D (Modified Proctor Test) from the top of the pipe cover material to the surface of the trench. Special compaction equipment and measures are required where standard compaction equipment cannot be utilized. Flooding of backfill will not be allowed. Compact native backfill mechanically to a minimum of 90% maximum density as determined by ASTM D1557 (Modified Proctor Test) from top of pipe cover material to trench surface. Compaction of the excavated and granular backfill material shall be compacted to achieve uniform consolidation in conformance with section 2.6.14(b) of the “SWS”.

C.2.3 Joints Between Dissimilar Pipe Materials

Connect dissimilar pipe materials by means of a nonshear flexible compression coupling. Install couplings in strict accordance with the manufacturer's recommendations. Joints on sanitary sewers between dissimilar pipe shall be either a non-shear coupling as manufactured by DFW/HPI or shall be made with flexible mechanical compression joint coupling conforming to ASTM C-594 Type B with stainless steel bands and shear ring conforming to ASTM A-167 as manufactured by Joints, Inc. (Calder) of Gardena, CA; Fernco Joint Sealer Co. of Ferndale, MI., or equal and in addition, using a transitional bushing conforming to ASTM C-594 Type B when pipe with different outside diameters are to be connected.

The cost of connecting dissimilar pipe materials with nonshear flexible compression coupling is incidental to the cost of sanitary sewer pipe.

D Measurement

The department will measure Sanitary Sewer (size) 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 unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.5101	Sanitary Sewer 8-Inch PVC	LF
SPV.0090.5102	Sanitary Sewer 10-Inch PVC	LF
SPV.0090.5103	Sanitary Sewer 21-Inch PVC	LF

Payment is full compensation for providing all materials including all pipe materials, fittings, and accessories required; for furnishing all asphaltic pavement removal and excavating; for providing and placing pipe bedding and cover material; for laying pipe; for sealing joints and making connections to new or existing facilities; for backfilling and compaction; for leakage testing; for providing and maintaining all necessary bypass pumping for sanitary sewer relay; for removing existing pipe, for cleaning out and restoring the work site; and for furnishing all labor, tools, equipment, and incidentals necessary to complete contract work.

296. Steel Casing w/ Sanitary Sewer 10-Inch PVC Carrier, Item SPV.0090.5104.

A Description

Bore and jack a steel casing pipe to the length and elevations as shown on the plans and install PVC restrained joint pipe according to AWWA C-900 and the standard specifications for Sewer and Water Construction in Wisconsin, latest Edition (SSSW).

B Materials

Casing Pipe shall be made of steel conforming to ASTM A-139 grade B, ASTM A 252 grade 2, 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 24-inch diameter and must have sufficient thickness to withstand both earth loads and live loads imposed from traffic. Contractor to 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. 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.

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.

Restrained joint Polyvinyl Chloride (PVC) Pipe Shall be CertainTeed Certa-Lok C900/RJ or approved equal, with cast-iron pipe (CI) outside diameters made from un-plasticized PVC compounds having a minimum cell classification of 12454 as defined in ASTM D 1784. The compound qualifies for a Hydrostatic Design Basis (HDB) of 4000 psi for water at 73.4°F according to the requirements of ASTM D 2837. Pipe, couplings, and locking splines are completely non-metallic.

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.

Restrained joint Polyvinyl Chloride (PVC) Pipe and couplings shall conform to AWWA C900, SDR 18. The restrained joint pipe system shall meet all short and long term pressure test requirements of AWWA C900-07.

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 and the WisDOT according to permit requirements before commencing casing installation. Provide complete installation at line and grade indicated on Drawings.

Weld the joints of sections of casing pipe to be installed with a continuous circumferential weld.

10-inch PVC carrier pipe (C-900, 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.

Prepare and submit a plan to the engineer for approval for bore pit installation and insertion of the PVC 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.

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.

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 borne by the contractor. Backfill access pits according to the appropriate specifications.

Properly sheet/shore all excavations according 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.

Compact native backfill mechanically to a minimum of 90% maximum density as determined by ASTM D1557 (Modified Proctor Test) from top of pipe cover material to trench surface. Compaction of the excavated shall be compacted to achieve uniform consolidation in conformance with section 2.6.14(b) of the SSSW.

D Measurement

The department will measure all Steel Casing w/ Sanitary Sewer 10-Inch PVC Carrier by the linear foot of pipe in place measured along the top centerline of the casing acceptably complete.

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/ Sanitary Sewer 10-Inch PVC Carrier	LF

Payment is full compensation for furnishing all labor, equipment, tools, materials and incidentals including 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 according to the contract.

297. Abandoning Sanitary Sewer 8-Inch, Item SPV. 0090.5105; Abandoning Sanitary Sewer 18-Inch, Item SPV. 0090.5106; Abandoning Sanitary Sewer 21-Inch, Item SPV. 0090.5107.

A Description

A.1 General

Perform work under these items according to the details as shown on the plans and the requirements of the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition (SSSW).

Notify the Milwaukee Metropolitan Sewerage District (MMSD) and City of Wauwatosa of the commencement of construction at least three district business days in advance. Notify, in writing, all businesses and property owners/occupants within the project limits to inform them of the project and to inform them of any temporary sewer service disconnections. Provide and maintain all necessary bypass pumping for sanitary sewer abandonment.

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.

B.3 Backfill Slurry

Backfill slurry shall meet the material and construction requirements of section 8.43.8 of the Standard Specifications for Sewer and Water.

C Construction

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 according 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.

D Measurement

The department will measure Abandoning Sanitary Sewer 8-Inch, Abandoning Sanitary Sewer 18-Inch, and Abandoning Sanitary Sewer 21-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.0090.5105	Abandoning Sanitary Sewer 8-Inch	LF
SPV.0090.5106	Abandoning Sanitary Sewer 18-Inch	LF
SPV.0090.5107	Abandoning Sanitary Sewer 21-Inch	LF

Payment is full compensation for providing all materials including all excavating; for bulkheading and abandoning existing sanitary sewer with cellular concrete; for providing backfill slurry material; and for providing and maintaining all necessary bypass pumping for abandonment.

298. Ductile Iron (DI) AWWA C-151 Class 55 Water Main 6-Inch, Item SPV.0090.5225; Ductile Iron (DI) AWWA C-151 Class 55 Water Main 8-Inch, Item SPV.0090.5226; Ductile Iron (DI) AWWA C-151 Class 55 Water Main 12-Inch, Item SPV.0090.5227; Ductile Iron (DI) AWWA C-151 Class 55 Water Main 16-Inch, Item SPV.0090.5228; Ductile Iron (DI) AWWA C-151 Class 55 Water Main 24-Inch, Item SPV.0090.5229.

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 according to AWWA C150, Class 55. Design pipe joint ends for rubber push-on gasket joints, conforming to AWWA C111. All materials shall be manufactured in the USA.

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.

Tracer wire shall be included on all water main installation.

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. or Cor-Blue.

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. Double wrap all water main and fittings.

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 Scapa Sealing Tape No. 136.

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 Owens Corning Foamular 1000.

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

According 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 12 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 according 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 4 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 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 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 the 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 according 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
24	6	7	10	13	16

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.

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 according 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, Class 55 Water Main 6, 8, 12 , 16 or 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.0090.5225	Ductile Iron (DI) AWWA C-151 Class 55 Water Main 6-Inch	LF
SPV.0090.5226	Ductile Iron (DI) AWWA C-151 Class 55 Water Main 8-Inch	LF
SPV.0090.5227	Ductile Iron (DI) AWWA C-151 Class 55 Water Main 12-Inch	LF
SPV.0090.5228	Ductile Iron (DI) AWWA C-151 Class 55 Water Main 16-Inch	LF
SPV.0090.5229	Ductile Iron (DI) AWWA C-151 Class 55 Water Main 24-Inch	LF

Payment is full compensation for furnishing all materials; fittings, joint restraint, corrosion protection, insulation, pressure testing, flushing and disinfection, concrete buttresses, shoring, temporary piling, traffic control, dewatering, and for excavating, backfilling, and compaction.

299. Removing Water Main, Item SPV.0090.5239.

A Description

This special provision describes the demolition and removal of existing water main piping, fittings, valves and all appurtenances and disposing of all resulting materials as shown in the plans, according to standard spec 204 and as hereinafter provided.

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 Water Main. Removal of existing steel, ductile iron and cast iron utility pipes less than 18 inches in diameter are not included in the item Removing Water Main and are considered incidental to the Excavation Common bid item. Asbestos lined pipes will be removed by the original utility owner and are

not included in the item Removing Water Main. Removal of existing utility pipes consisting of materials other than steel of any size are incidental to the Excavation Common bid item.

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. Water main designated for removal shall be removed from the project site.

D Measurement

The department will measure Removing Water Main by the linear foot, acceptably completed, measured along the centerline of pipe, from one end of existing pipe to the other end of existing 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.0090.5239	Removing 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.

300. Abandon Existing 6-Inch Water Main, Item SPV.0090.5250; Abandon Existing 8-Inch Water Main, Item SPV.0090.5251; Abandon Existing 12-Inch Water Main, Item SPV.0090.5252; Abandon Existing 16-Inch Water Main, Item SPV.0090.5253.

A Description

Perform the work according 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 according 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 Existing 6, 8, 12, 16 or 24-inch Water Main 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.0090.5250	Abandon Existing 6-Inch Water Main	LF
SPV.0090.5251	Abandon Existing 8-Inch Water Main	LF

SPV.0090.5252	Abandon Existing 12-Inch Water Main	LF
SPV.0090.5253	Abandon Existing 16-Inch Water Main	LF

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.

301. 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.

302. Precast Trench Drain, Item SPV.0090.8031; Temporary Precast Trench Drain, Item SPV.0090.8036.

A Description

This special provision describes providing a precast trench drain system and temporary precast trench drain systems as the plans show. Conform to standard spec 415 and 611 and as follows.

B Materials

B.1 Documentation

Submit manufacturer's specifications, certifications, and installation instructions for grates, frames, connections, and precast drain channel two weeks before placement for engineer approval.

B.2 Frames and Grates

Furnish frames and grates manufactured of ductile iron conforming to ASTM A536 and meets AASHTO HS-25 load ratings for heavy duty high speed traffic. Ensure that frames and grates are one piece anchored into the body of the line drain, except where the plans show removable grates.

For removable grates, provide a repetitive minimum pullout resistance of 340 pounds per foot of length after completion of 1,000 hours of salt spray testing according to ASTM B117. Match removable grates to their frames in pairs before delivery to the worksite. Ensure that grates fit into frames without rocking. Furnish corrosion resistant locking devices for removable grates.

Secure the trench drain system in concrete according to the manufacturers specifications. Use concrete conforming to standard spec 415.2.1.

Furnish concrete curing compounds conforming to standard spec 415.2.4.

B.3 Precast Drain Channel

Furnish precast drain channel sections constructed of monolithic polymer concrete. Ensure that the interior surface of the channel is smooth below the level of the frame, grate, and associated connections. Use polymer concrete consisting of aggregate with either polyester resin or vinylester resin. Ensure that the polymer concrete conforms to the following:

Property	ASTM Test Method	VALUE
Compressive Strength	C-579	12,000 psi minimum
Tensile Strength	C-307	1,500 psi minimum
Flexural Strength	C-580	3,000 psi minimum
Moisture Absorption	C-140	5% max
Chemical Resistance	C-267	Pass
Freeze Thaw	C-666	1,600 minimum cycles without weight loss

C Construction

Excavate trench channel to the lines and grades the plans show. Grade and compact the bottom of the trench to provide firm and uniform bearing throughout.

Install the trench drain channel, trench drain joints, and connections according to manufacturers' instructions. Install trench drains to the lines and grades the plans show. Securely join sections of the precast drain channel to prevent separation during backfilling. Connect to existing drainage facilities as the plans show before placing concrete backfill.

Place concrete in channel without floating or shifting the line drain and without concrete segregation. Secure the frames or the line drain wall into the concrete with steel anchoring rods. Ensure that concrete backfill is flush with the adjacent surfaces and with the drain's frame. Texture the surface of the concrete with a broom or burlap to produce a durable, skid-resistant surface.

D Measurement

The department will measure Precast Trench Drain and Temporary Precast Trench Drain 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.0090.8031	Precast Trench Drain	LF
SPV.0090.8036	Temporary Precast Trench Drain	LF

Payment is full compensation for providing precast trench drain; for excavation; aggregate base materials; for concrete backfill; and for disposing of waste materials and restoring the site.

SER-611-002 (20180327)

303. Survey Project 1060-33-84, Item SPV.0105.0604; Survey Project 1060-34-77, Item SPV.0105.0605.

A Description

This special provision describes modifying standard spec 105.6 and 650 to define the requirements for construction staking for this contract. Conform to standard spec 105.6 and 650 and as follows.

The department will not perform any construction staking for this contract. Obtain engineer's approval before performing all survey required to lay out and construct the work under this contract.

Replace standard spec 650.1 with the following:

This section describes the contractor-performed construction staking required under individual contract bid items to establish the horizontal and vertical position for all aspects of construction including:

- storm sewer
- subgrade
- base
- curb
- gutter
- curb and gutter
- curb ramps
- 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
- traffic control items
- fencing

B (Vacant)

C Construction

Add the following to standard spec 650.3.1 (5):

Confirm with engineer before using 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 structure centers, offsets, access openings, rim and invert elevations.
6. Sanitary sewer construction or other gravity–based drainage system, including structure centers, offsets, access openings, rim and invert elevations.

Replace standard spec 650.3.1.1(2) with the following:

(6) Maintain neat, orderly, and complete survey notes, drawings, and computations used in establishing the lines and grades. This includes:

- Raw data files
- Digital stakeout reports
- Control check reports
- Supplemental control files (along with method used to establish coordinates and elevation)
- 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 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 spec 105.6 or standard spec 650 by having provided this additional information.

Add the following to standard spec 650.3.3.3.6.2 as paragraph four:

Record all subgrade elevation checks and submit a hard copy to the engineer within 24 hours or as requested by the engineer.

Add the following to standard spec 650.3 as subsections 650.3.15 and 650.3.16:

650.3.15 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 vertical.

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.

650.3.16 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. 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:

(1) The department will measure Survey Project 1060-33-84 and Survey Project 1060-34-77 as a separate single lump sum unit, 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.0105.0604	Survey Project 1060-33-84	LS
SPV.0105.0605	Survey Project 1060-34-77	LS

Payment is full compensation for performing all survey work required to lay out and construct all work under this contract and for adjusting stakes to ensure compatibility with existing field conditions. The department will not make final payment for this 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. Re-staking due to construction disturbance and knock-outs will be performed at no additional cost to the department.

sef-650-005 (20181219)

304. Maintenance of Lighting Systems, Item SPV.0105.1001.

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. Condition issues found during contractor assessment can be discussed and addressed by contacting the SE Region Lighting Engineer (Eric Perea) prior to maintenance responsibility being transferred to the contractor.

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 and/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, 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.0105.1001	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.

305. Lighting System Integrator, Item SPV.0105.1002.

A Description

This special provision describes 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, the contractor shall assign one individual person as the freeway lighting integrator.

The freeway lighting integrator shall:

1. Familiarize himself with the location and nature of existing lighting circuits. This familiarity shall include the extent of any lighting system that overlaps project limits.
2. Maintain a file of applicable permits or licenses issued to the contractor, and convey copies to the engineer.
3. Keep with him at all times a contact list of affected lighting personnel.
4. Maintain a record of tagouts and the clearance of tagouts.
5. Interface with department electrical personnel to determine how contract limits might affect maintenance or operation of existing systems.
6. 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.
7. Inform the department of any lighting outages, including outside the project limits where a lighting system crosses the project boundary.

8. 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.
9. 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.
10. 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.
11. Secure copies of operator’s manuals, tear sheets, etc. as may be provided by manufacturers of some lighting materials, and convey a minimum of three sets to the department.
12. Work with the engineer to notify department electrical personnel of acceptance or partial acceptance.
13. Perform related duties as may be needed to ensure continuity of freeway lighting during construction, and orderly transfer upon completion.

D Measurement

The department will measure Lighting System Integrator as a single lump sum unit, 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.0105.1002	Lighting System Integrator	LS

Payment will be full compensation for providing specified expertise, assistance and documents, and personnel costs.

306. Lighting System Survey, Item SPV.0105.1003.

A Description

This special provision describes performing a lighting system survey as-built for IH 41 Swan Boulevard to Burleigh Street, Roadway, as shown on the plans, and hereinafter provided.

B Vacant

C Construction

Locate and survey all the lighting units, pull boxes, and control cabinets to sub-meter accuracy. Maintain neat, orderly, and complete survey notes. The survey shall be performed in NAD 83, Wisconsin County Coordinate System (WCCS), and Milwaukee Coordinates. The data shall be delivered in a comma delimited text file with metadata including datum, county, and date the survey was performed. Data for each point shall have a point number, northing, easting, and point description including pole, pull box, or cabinet number.

D Measurement

The department will measure Lighting System Survey for all lighting units, pull boxes, and control cabinets as a single lump sum unit, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit prices under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.1003	Lighting System Survey	LS

Payment will be full compensation for locating and surveying all the lighting units, pull boxes, and control cabinets and for delivery of the comma delimited data file and all survey notes.

307. Transport and Install State Furnished Traffic Signal Cabinet IH 41 SB On Ramp & W North Ave, Item SPV.0105.3001; Transport and Install State Furnished Traffic Signal Cabinet IH 41 NB On Ramp & W North Ave, Item SPV.0105.3002.

A Description

This special provision describes the transporting and installing of department furnished materials for traffic signals as the plans show and as follows.

B Materials

Use materials furnished by the department including: the traffic signal controller and the traffic signal cabinet.

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 five (5) working days prior to picking the materials up.

Provide all other needed materials in conformance with standard spec 651.2, 652.2, 653.2, 654.2, 655.2, 656.2, 657.2, 658.2 and 659.2.

C Construction

Perform work according to standard spec 651.3, 652.3, 653.3, 654.3, 655.3, 656.3, 657.3, 658.3 and 659.3 except as specified below.

Request a signal inspection of the completed signal installation to the engineer at least five working days prior to the time of the requested inspection. The departments' Region Electrical personnel will perform the inspection.

D Measurement

The department will measure Transport and Install Traffic Signal Cabinet [Location] as a single lump sum unit of work, in place 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.0105.3001	Transport and Install State Furnished Traffic Signal Cabinet IH 41 SB On Ramp & W North Ave	LS
SPV.0105.3002	Transport and Install State Furnished Traffic Signal Cabinet IH 41 NB On Ramp & W North Ave	LS

Payment is full compensation for transporting and installing the traffic signal controller and the traffic signal 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 and for clean-up and waste disposal.

SER-658.5 (20170419) ELEC

308. Transport and Install State Furnished Emergency Vehicle Preemption (EVP) Detector Heads with Confirmation Beacons IH 41 SB On Ramp & W North Ave, Item SPV.0105.3003; Transport and Install State Furnished Emergency Vehicle Preemption (EVP) Detector Heads with Confirmation Beacons IH 41 NB On Ramp & W North Ave, Item SPV.0105.3004.

A Description

This special provision describes transporting and installing department furnished Emergency Vehicle Preemption (EVP) Detector Heads, Confirmation Beacons, and mounting brackets at IH 41 SB Ramps & W. North Avenue and IH 41 NB Ramps & W. North Avenue as the plans show and as follows.

B Materials

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 five working days prior to picking the materials up.

C Construction

Install the EVP detector heads and confirmation beacons as shown on the plans. The department will determine the exact location to ensure that the installation does not create a sight obstruction. Mount the EVP detector heads and wire them per manufacturer instructions. Mount the confirmation beacons. For a cabinet that is not operating the signal, the contractor will terminate the ends and install the discriminators and card rack in the cabinet. If the cabinet is operating the signal, the cabinet wiring will be done by the department.

Notify the department's Electrical shop at (414) 266-1170 upon completion of the installation of the Emergency Vehicle Preemption (EVP) Detector Heads with Confirmation Beacons.

D Measurement

The department will measure Transport and install State Furnished Emergency Vehicle Preemption (EVP) Detector Heads with Confirmation Beacons [Location] as a single lump sum unit 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.0105.3003	Transport and Install State Furnished Emergency Vehicle Preemption (EVP) Detector Heads with Confirmation Beacons IH 41 SB On Ramp & W North Ave	LS
SPV.0105.3004	Transport and Install State Furnished Emergency Vehicle Preemption (EVP) Detector Heads with Confirmation Beacons IH 41 NB On Ramp & W North Ave	LS

Payment is full compensation for transporting and installing department furnished Emergency Vehicle Preemption (EVP) Detector Heads, Confirmation Beacons, and mounting brackets.

309. Transport and Install State Furnished FO Cable Pigtail 8-CT IH 41 SB On Ramp & W North Ave, Item SPV.0105.3005; Transport and Install State Furnished FO Cable Pigtail 8-CT IH 41 NB On Ramp & W North Ave, Item SPV.0105.3006.

A Description

This special provision describes the transporting and installing of fiber optic cable pigtail 8-ct in traffic signal cabinets.

B Materials

The department will furnish the pre-terminated fiber optic patch panel. The material will be provided with the traffic signal cabinet. The patch panel will have a pre-terminated fiber optic cable pigtail. Provide all patch panel attachment hardware.

C Construction

Install the patch panel on the side of the traffic signal cabinet opposite the electrical service at a location as approved by the engineer. 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.

D Measurement

The department will measure Transport and Install State Furnished FO Cable Pigtail 8-Ct [Location] as a single lump sum unit 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.0105.3005	Transport and Install State Furnished FO Cable Pigtail 8-CT IH 41 SB On Ramp & W North Ave	LS
SPV.0105.3006	Transport and Install State Furnished FO Cable Pigtail 8-CT IH 41 NB On Ramp & W North Ave	LS

Payment is full compensation for transporting and installing pre-terminated patch panels; furnishing and installing attachment hardware; and cleaning up and disposing of waste.

310. Transport and Install State Furnished Municipal Traffic Signal Cabinet W North Ave & N 116th St, Item SPV.0105.3101.

A Description

This special provision describes the transporting and installing of department furnished materials for traffic signals as the plans show and as follows.

B Materials

Use materials furnished by the department including: the traffic signal controller and the traffic signal cabinet.

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 five working days prior to picking the materials up.

Provide all other needed materials in conformance with standard spec 651.2, 652.2, 653.2, 654.2, 655.2, 656.2, 657.2, 658.2 and 659.2.

C Construction

Perform work according to standard spec 651.3, 652.3, 653.3, 654.3, 655.3, 656.3, 657.3, 658.3 and 659.3 except as specified below.

Request a signal inspection of the completed signal installation to the engineer at least five working days prior to the time of the requested inspection. The departments' Region Electrical personnel and City of Wauwatosa Department of Public Works will perform the inspection.

D Measurement

The department will measure Transport and Install Municipal Traffic Signal Cabinet [Location] as a single lump sum unit of work, in place 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.0105.3101	Transport and Install State Furnished Municipal Traffic Signal Cabinet W North Ave & N 116th St	LS

Payment is full compensation for transporting and installing the traffic signal controller and the traffic signal 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 and for clean-up and waste disposal.

311. Video Vehicle Detection System W North Ave & N 116th St, Item SPV.0105.3102.

A Description

This specification sets forth the minimum requirements for a system that detects vehicles on a roadway using only video images of vehicle and bicycle traffic.

The video detection camera system shall consist of the latest model video image detector cameras, mounting brackets and hardware, video monitor, video image processor card, power cable, and auxiliary equipment to make the video detector system fully operational. The camera shall be an Iteris brand model and shall be equipped with a battery backup system.

B Materials

B.1 System Hardware

The video detection system (VDS) shall consist of video cameras, a video detection processor (VDP) capable of processing from multiple video sources, output extension modules, video surge suppressors and a pointing device.

B.1.1 Available System Configurations

The VDS will be deployed at locations where site conditions and roadway geometry vary. The VDS system may also be deployed at locations where existing cabinets or equipment exist. Existing site configurations will dictate the availability of cabinet space and VDS usage.

The proposed VDS shall be available in various configurations to allow maximum deployment flexibility. Each configuration shall have an identical user interface for system setup and configuration. The communications protocol to each configuration shall be identical and shall be hardware platform independent. The proposed VDS shall have multiple configurations available for deployment as described in Table 1.

Table 1. VDS Configuration

Description	No. Video Inputs	No. Video Outputs	Mounting Configuration	Power Supply Requirements
Single-Channel Rack Mounted	1	1	Rack Mount (Type 170 or NEMA TS-1, TS-2 Racks)	12 or 24 VDC Power From Rack
Dual-Channel Rack Mounted	2	1	Rack Mount (Type 170 or NEMA TS-1, TS-2 Racks)	12 or 24 VDC Power From Rack
Quad-Channel Rack Mounted	4	1	Rack Mount (Type 170 or NEMA TS-1, TS-2 Racks)	12 or 24 VDC Power From Rack

B.1.2 System Software

The system shall include software that discriminately detects the presence of individual vehicles and bicycles in a single or multiple lanes using only the video image. Detection zones shall be defined using only an on-board video menu and a pointing device to place the zones on a video image. A minimum of 24 detection zones per camera view shall be available. A separate computer shall not be required to program the detection zones. In addition to creating vehicle and bicycle zones, the system shall automatically define a pedestrian crossing area in front of the stop bar zones. The system shall provide a tracking mechanism that counts pedestrian volume moving within this crossing area, and also determine the average, maximum, and minimum speed of pedestrians moving within this crossing zone. The system shall also provide discrete outputs when pedestrians are in the crosswalk during normal crossing phases and when a red phase input has been detected. The system shall also provide a visual indication on the video image that a pedestrian is in the crosswalk.

The VDS shall be made in the U.S.A. in compliance with FTA “Buy America” regulations.

B.2 VDP Hardware

B.2.1 VDP System Interfaces

The following interfaces shall be provided for each of the configurations identified in Table 1.

B.2.1.1 Video Input

Each video input shall accept RS170 (NTSC) or CCIR (PAL) signals from an external video source (camera sensor, DVD or video tape player). The interface connector shall be BNC type and shall be located on the front of the video processing unit. For four-channel VDPs, an adapter cable that converts a DB15 interface to 4 individual BNC connectors shall be used. The VDP shall have the capability to be terminated into 75-ohms or high impedance (Hi-Z) using dip switches or software control from the user menu.

B.2.1.2 Video Lock LED

A LED indicator shall be provided to indicate the presence of the video signal. The LED shall illuminate upon valid video synchronization and turn off when the presence of a valid video signal is removed.

B.2.1.3 Video Output

One video output shall be provided. The video output shall be RS170 or CCIR compliant and shall pass through the input video signal. For multi-channel video input configurations, a momentary push-button shall be provided on the front panel to cycle through each input video channel. In the absence of a valid video signal, the channel shall be skipped, and the next valid video signal shall be switched. The real time video output shall have the capability to show text and graphical overlays to aid in system setup. The overlays shall display real-time actuation of detection zones upon vehicle detection or presence. Overlays shall be able to be turned off by the user. Control of the overlays and video switching shall also be provided through the serial communications port. The video output interface connector shall be positive locking BNC type. Friction type (e.g. RCA type) connectors shall not be allowed.

B.2.1.4 Serial Communications

A serial communications port shall be provided on the front panel. The port shall support serial communications using a USB Type B connector mounted on the front panel of the VDP. The serial communications interface shall allow the user to remotely configure the system and/or to extract calculated vehicle/roadway information. Each VDS shall have the capability to be addressable. The VDP shall support data rates of 1200 bps to 230,400 bps, inclusive.

B.2.1.5 Contact Closure Output

Open collector (contact closure) outputs shall be provided. Four (4) open collector outputs shall be provided for the single, dual or quad channel rack-mount configuration. Additionally, the VDP shall allow the use of extension modules to provide up to 24 open collector contact closures per camera input. Each open collector output shall be capable of sinking 30 mA at 24 VDC. Open collector outputs will be used for vehicle detection indicators as well as discrete outputs for alarm conditions. The VDP outputs shall be compatible with industry standard detector racks assignments.

B.2.1.6 Logic Inputs

Logic inputs such as delay/extend or delay inhibit shall be supported through the appropriate detector rack connector pin or front panel connector in the case of the I/O module. For VDPs and extension modules, 4 inputs shall be supported via detector rack interface. The I/O module shall accommodate eight (8) inputs through a 15-pin “D” connector.

B.2.1.7 Detection LEDs

Detection status LEDs shall be provided on the front panel. The LEDs shall illuminate when a contact closure output occurs. Rack-mounted video processors shall have a minimum of four LEDs. Rack-mounted extension modules shall have two, four or eight LEDs (depending upon extension module type) to indicate detection.

B.2.1.8 Test Switches

The front panel of the VDP shall have detector test switches to allow the user to manually place vehicle and bicycle calls on each VDP output channel. The test switch shall be able to place either a constant call or a momentary call depending on the position of the switch.

B.2.1.9 USB Type A Ports

A USB Type A port shall be provided on the front panel of the rack mount VDP unit to support a mouse pointing device. The mouse port shall not require special mouse software drivers. The mouse port shall be used as part of system setup and configuration. A mouse shall be provided with each VDP. A second USB Type A port shall be provided for other use such as thumb-drive firmware upgrades.

B.2.1.10 Extension Module Port

Extension modules (EM) shall be connected to the VDP by an 8-wire twisted-pair cable with modular RJ45 connectors. VDP and EM communications shall be accommodated by methods using differential signals to reject electrically coupled noise.

B.2.2 Extension Modules

Extension modules (EM) shall be available to eliminate the need of rewiring the detector rack, by enabling the user to plug an extension module into the appropriate slot in the detector rack to provide additional open collector outputs. The EM shall be available in both 2- and 4-channel configurations. EM configurations shall be programmable from the VDP. A separate I/O module shall also be available having 32 outputs through a 37-pin “D” connector on the front panel and 8 inputs through a 15-pin “D” connector using an external wire harness for expanded flexibility.

Both the VDP and EM shall be specifically designed to mount in a standard detector rack, using the edge connector to obtain power, provide contact closure outputs and accept logic inputs (e.g. delay/extend). No adapters shall be required to mount the VDP or EM in a standard detector rack and no rack rewiring shall not be required.

VDP printed circuit boards (PCBs) shall be conformally coated according to Caltrans and NEMA specifications.

B.2.3 On-board Memory

The VDP shall utilize non-volatile memory technology to store on-board firmware and operational data.

B.2.4 Firmware Upgrade

The VDP shall enable the loading of modified or enhanced software through the serial or front-panel USB port (using a USB thumb drive) and without removing or modifying the VDP hardware.

B.2.5 Input Power

The VDP and EM shall be powered by 12 or 24 volts DC. VDP and EM modules shall automatically compensate for either 12 or 24 VDC operation. VDP power consumption shall not exceed 7.5 watts. The EM power consumption shall not exceed 3 watts.

B.2.6 Operating Temperature

The VDP shall operate satisfactorily in a temperature range from -30° F to +165° F (-34° C to +74° C) and a humidity range from 0%RH to 95%RH, non-condensing as set forth in NEMA specifications.

B.2.7 Video Surge Suppression

An Edco CX-06M video surge suppresser shall be provided and utilized for each video input. The surge suppresser shall be appropriately grounded to the cabinet ground rod using 14 AWG (2.5mm2) minimum.

B.3 VDP Software

B.3.1 General System Functions

Detection zones shall be programmed via an on-board menu displayed on a video monitor and a pointing device connected to the VDP. The menu shall facilitate placement of detection zones and setting of zone parameters or to configure system parameters. A separate computer shall not be required for programming detection zones or to view system operation.

The VDP shall store up to three completely independent detection zone patterns in non-volatile memory. The VDP can switch to any one of the three different detection patterns within 1 second of user request via menu selection with the pointing device. Each configuration shall be uniquely labeled and able to be edited by the user for identification. The currently active configuration indicator shall be displayed on the monitor.

The VDP shall detect vehicles and bicycles in real time as they travel across each detection zone.

The VDP shall automatically define a pedestrian crossing area, and track pedestrians in real-time as they travel across this pedestrian crossing area in both directions. The VDP shall count pedestrians moving left-to-right, and right-to-left. The VDP shall measure the speed of pedestrians moving left-to-right, and right-to-left, and provide the minimum, maximum, and average speed of the pedestrians per the bin interval. These values shall be displayed on-screen for both directions, and an option shall be provided to the user to turn this on-screen display on or off.

The VDP shall provide a discrete output when pedestrians are being tracked in the crosswalk. A separate output may be assigned to each direction of pedestrian travel.

The VDP shall provide a discrete output when pedestrians are crossing against a red phase. The VDP shall allow up to 4 phase inputs to be assigned to each crosswalk.

The VDP shall accept new detection patterns from an external computer through the serial port when the external computer uses the correct communications protocol for downloading detection patterns. A Windows™-based software designed for local or remote connection and providing video capture, real-time detection indication and detection zone modification capability shall be provided with the system.

The VDP system shall have the capability to automatically switch to any one of the stored configurations based on the time of day which shall be programmable by the user.

The VDP shall send its detection patterns to an external computer through the serial port when requested when the external computer uses the appropriate communications protocol for uploading detection patterns.

The VDP shall default to a safe condition, such as a constant call on each active detection channel, in the event of unacceptable interference or loss of the video signal.

The system shall be capable of automatically detecting a low-visibility condition such as fog and respond by placing all affected detection zones in a constant call mode. A user-selected alarm output shall be active during the low-visibility condition that can be used to modify the controller operation if connected to the appropriate controller input modifier(s). The system shall automatically revert to normal detection mode when the low-visibility condition no longer exists.

Up to 24 detection zones per camera input shall be supported and each detection zone must be user-sizeable to suit the site and the desired vehicle or bicycle detection region.

The VDP shall provide up to 24 open collector output channels per camera input using one or more extension modules.

The VDP shall provide a discrete output when pedestrians are being tracked in the crosswalk.

The VDP shall provide a discrete output when pedestrians are crossing against a red phase. The VDP shall allow up to 4 phase inputs to be assigned to each crosswalk.

A single detection zone shall be able to replace multiple inductive loops and the detection zones shall be OR'ed as the default or may instead be AND'ed together to indicate vehicle presence on a single approach of traffic movement.

When a vehicle or bicycle is detected within a detection zone, a visual indication of the detection shall activate on the video overlay display to confirm the detection of the vehicle for the zone.

Detection shall be at least 98% accurate in good weather conditions, with slight degradation possible under adverse weather conditions (e.g. rain, snow, or fog) which reduce visibility. Detection accuracy is dependent upon site geometry, camera placement, camera quality and detection zone location, and these accuracy levels do not include allowances for occlusion or poor video due to camera location or quality.

The VDP shall provide dynamic zone reconfiguration (DZR). DZR sustains normal operation of existing detection zones when one zone is being added or modified during the setup process. The new zone configuration shall not go into effect until the configuration is saved by the operator.

Detection zone setup shall not require site specific information such as latitude and longitude to be entered into the system.

The VDP shall process the video input from each camera at 30 frames per second (NTSC) / 25 frames per second (PAL). Multiple camera processors shall process all video inputs simultaneously.

The VDP shall output a constant call during the background learning period of no longer than 3 minutes.

Detection zone outputs shall be individually configurable to allow the selection of presence, pulse, extend, and delay outputs. Timing parameters of pulse, extend, and delay outputs shall be user definable between 0.1 to 25.0 seconds.

Up to six detection zones per camera view shall have the capability to count the number of vehicles detected. The count value shall be internally stored for later retrieval through the serial port. The zone shall also have the capability to calculate and store average speed and lane occupancy at user-selectable bin intervals of 10 seconds, 20 seconds, 1 minute, 5 minutes, 15 minutes, 30 minutes and 60 minutes.

In addition to the count type zone, the VDP shall be able to calculate average speed and lane occupancy for all of the zones independently. These values shall be stored in non-volatile memory for later retrieval.

The VDP shall have an “advance” zone type where raw detection output duration to the traffic controller is compensated for angular occlusion and distance.

The VDP shall support bicycle type zones where the zone can differentiate between motorized vehicles and bicycles, producing a call for one but not the other.

Bicycle zone types shall only output when a bicycle is detected. Larger motorized vehicles such as cars and trucks that traverse a bicycle zone shall not provide an output.

The VDP shall provide the ability to assign a separate output channel for bicycle zones to allow traffic controllers to implement special bicycle timing for applications where the traffic controller has separate bicycle detection inputs.

Bicycle zones shall have the ability to have extensions assigned to individual bicycle zones for applications where the traffic controller does not have bicycle specific detection inputs.

Six additional count zones for bicycles, separate from the 6 data collection zones for vehicles, shall be provided to accumulate bicycle counts at user specified intervals.

Placement of bicycle type zones in vehicle lanes shall be allowed.

Upon detection of a bicycle, the video output overlay shall indicate active detection as well as providing a unique bicycle detection identifier to visually distinguish bicycle detection versus vehicle detection.

The system will automatically count the vehicles in each lane of traffic, which includes through moving, right and left turning vehicles. Once standard detection zones have been configured the system will determine the path of vehicles and begin to track them. The count value shall be internally stored for later retrieval through the serial port. The data shall also have the capability to be stored at user-selectable bin intervals of 10 seconds, 20 seconds, 1 minute, 5 minutes, 15 minutes, 30 minutes and 60 minutes. The current count will be displayed on the video image. The current count display may be disabled by the user.

In addition, any valid detector output may be assigned to the automatic count. For each count the associated detector output will be pulsed for 100mS.

The VDP shall employ color overlays on the video output.

The VDP shall have the ability to show controller phase status (green, yellow, or red) for up to 8 phases. These indications shall also be color coded.

The user shall have the ability to enable or disable the display of the phase information on the video output.

The VDP shall have the capability to change the characteristics of a detection zone based on external inputs such as signal phase. Each detection zone shall be able to switch from one zone type (i.e. presence, extension, pulse, etc.) to another zone type based on the signal state. For example, a zone may be a “count” zone when the phase is green but change to a “presence” zone type when the phase is not green. Another application would be zone type of “extension” when the signal phase is green and then “delay” when red.

For alpha numeric user inputs, the VDP shall utilize a virtual keyboard on the video overlay system to ease user input. The virtual keyboard shall use the standard QWERTY keyboard layout.

The VDP shall aid the user in drawing additional detection zones by automatically drawing and placing zones at appropriate locations with only a single click of the mouse. The additional zone shall utilize geometric extrapolation of the parent zone when creating the child zone. The process shall also automatically accommodate lane marking angles and zone overlaps.

When the user wishes to modify the location of a zone, the VDP shall allow the user move a single zone, multiple zones or all zones simultaneously.

When the user wishes to modify the geometric shape of the zone, the VDP shall allow the user to change the shape by moving the zone corner or zone sides.

On screen zone identifiers shall be modifiable by the user. The user shall be allowed to select channel output assignments, zone type, input status, zone labels or zone numbers to be the identifier.

For multiple camera input VDPs, the user shall have the ability to enable automatic video output switching. The dwell time for each video input shall be user programmable.

The VDP shall have the capability to show pedestrian activity in the crosswalk through a visual indication on the video output.

B.4 VDS Camera Sensor

To accommodate deployment flexibility, the VDS camera sensor shall be compatible will all VDP platforms identified in Table 1. The VDS camera sensor shall be supplied by the VDS manufacturer.

The advanced camera enclosure shall utilize Indium Tin Oxide (ITO) technology for the heating element of the front glass. The transparent coating shall not impact the visual acuity and shall be optically clear.

Cable terminations at the camera for video and power shall not require crimping or special tools. The video termination shall only require a coax stripper and a screw driver. No connectors (e.g. BNC) shall be allowed. The power termination shall only require a standard wire stripper and screw driver.

The camera sensor shall allow the user to set the focus and field of view either at the camera sensor or from the controller cabinet. Camera sensor control from the controller cabinet shall communicate over the coaxial cable. No additional wires shall be required.

The camera shall produce a useable video image of the features of vehicles under all roadway lighting conditions, regardless of time of day. The minimum range of scene luminance over which the camera shall produce a useable video image shall be the minimum range from nighttime to daytime, but not less than the range 0.003 lux to 10,000 lux.

The camera electronics shall include automatic gain control (AGC) to produce a satisfactory image at night for the VDS algorithms.

The imager luminance signal to noise ratio (S/N) shall be more than 50 dB with the automatic gain control (AGC) disabled.

The imager shall employ three dimensional dynamic noise reduction (3D-DNR) to remove unwanted image noise.

The camera imager shall employ wide dynamic range (WDR) technology to compensate for wide dynamic outdoor lighting conditions. The dynamic range shall be greater than 100 dB.

The camera shall be digital signal processor (DSP) based and shall use a CCD sensing element and shall output color video with resolution of not less than 600 TV lines. The color CCD imager shall have a minimum pixel count of 480K (NTSC) / 570K (PAL).

The camera shall include an electronic shutter control based upon average scene luminance and shall be equipped with an auto-iris lens that operates in tandem with the electronic shutter. The electronic shutter shall operate between the range of 1/60th to 1/120,000th second.

The camera shall utilize automatic white balance.

The camera shall include a variable focal length lens with variable focus that can be adjusted, without opening up the camera housing, to suit the site geometry by means of a portable interface device designed for that purpose and manufactured by the detection system supplier.

The horizontal field of view shall be adjustable from 2.5 to 48 degrees. This camera configuration may be used for the majority of detection approaches in order to minimize the setup time and spares required by the user. The lens shall provide an up to 24x zoom lens with a focal length of 3.8 mm to 45.6 mm.

The lens shall also have an auto-focus feature with a manual override to facilitate ease of setup.

The camera shall incorporate the use of preset positioning that store zoom and focus positioning information. The camera shall have the capability to recall the previously stored preset upon application of power.

The camera shall be housed in a weather-tight sealed enclosure. The enclosure shall be made of 6061 anodized aluminum. The housing shall allow the camera to be rotated to allow proper alignment between the camera and the traveled road surface.

The camera enclosure shall be equipped with a sunshield. The sunshield shall include a provision for water diversion to prevent water from flowing in the camera's field of view. The camera enclosure with sunshield shall be less than 6" (15.2 cm) diameter, less than 18" (45.7 cm) long, and shall weigh less than 6 pounds (2.73 kg) when the camera and lens are mounted inside the enclosure.

The enclosure shall be design so that the pan, tilt and rotation of the camera assembly can be accomplished independently without affecting the other settings.

The camera enclosure shall include a proportionally controlled Indium Tin Oxide heater design that maximizes heat transfer to the lens. The output power of the heater shall vary with temperature, to assure proper operation of the lens functions at low temperatures and prevent moisture condensation on the optical faceplate of the enclosure.

The glass face on the front of the enclosure shall have an anti-reflective coating to minimize light and image reflections.

When mounted outdoors in the enclosure, the camera shall operate satisfactorily in a temperature range from -30° F to +140° F (-34 °C to +60 °C) and a humidity range from 0% RH to 100% RH. Measurement of satisfactory video shall be based upon VDP system operation.

The camera shall be powered by 120-240 VAC 50/60 Hz. Power consumption shall be 5 watts typical and 25 watts or less under worst conditions.

Recommended camera placement height shall be 33 feet (or 10 meters) above the roadway, and over the traveled way on which vehicles are to be detected. For optimum detection the camera should be centered above the traveled roadway. The camera shall view approaching vehicles at a distance not to exceed 350 feet (107 meters) for reliable detection (height to distance ratio of 10:100). Camera placement and field of view (FOV) shall be unobstructed and as noted in the installation documentation provided by the supplier.

The camera shall provide 2 options for set up, diagnostic testing, and viewing of video. A lens adjustment module (LAM) supplied by the VDP supplier, when connected directly to the camera shall allow set up, diagnostic testing, and viewing of video while the camera is being installed on a mast arm or pole. The (LAM) shall also allow set up, diagnostic testing, and viewing of the video from the cabinet when connected to the coaxial cable.

The video signal shall be fully isolated from the camera enclosure and power cabling.

Cable terminations at the camera for video and power shall not require crimping tools.

A weather-proof protective cover shall be provided shall be provided to protect all terminations at the camera. No special tooling shall be required to remove or install the protective cap.

B.5 Coaxial Cable

The coaxial cable to be used between the camera and the VDP in the traffic cabinet shall be Belden 8281. This cable shall be suitable for installation in conduit or overhead with appropriate span wire. BNC plug connectors shall be used where applicable. The coaxial cable, BNC connector, and crimping tool shall be approved by the supplier of the video detection system, and the manufacturer's instructions must be followed to ensure proper connection.

B.6 Power Cable

The power cabling shall be 16 AWG (1.0 mm2) three-conductor cable with a minimum outside diameter of 0.325 inch (8.3 mm) and a maximum diameter of 0.490 inch (12.4 mm). The cabling shall comply with the National Electric Code, as well as local electrical codes. Cameras may acquire power from the luminaire if necessary.

B.7 Warranty

The supplier shall provide a limited three-year warranty on the video detection system.

During the warranty period, technical support shall be available from the supplier via telephone within 4 hours of the time a call is made by a user, and this support shall be available from factory-certified personnel or factory-certified installers.

During the warranty period, updates to VDP software shall be available from the supplier without charge.

B.8 Maintenance and Support

The supplier shall maintain an adequate inventory of parts to support maintenance and repair of the video detection system. These parts shall be available for delivery within 30 days of placement of an acceptable order at the supplier's then current pricing and terms of sale for said parts.

The supplier shall maintain an ongoing program of technical support for the video detection system. This technical support shall be available via telephone, or via personnel sent to the installation site upon placement of an acceptable order at the supplier's then current pricing and terms of sale for on site technical support services.

Installation or training support shall be provided by a factory-authorized representative and shall be a minimum IMSA-Level II Traffic Signal Technician certified.

All product documentation shall be written in the English language.

C Construction

Install the Video Vehicle Detection System (Location) according to the pertinent sections of the standard specifications and manufacturer's recommendations.

The coaxial cable and power cable shall be installed as a continuous unbroken run from the cameras to the VDP.

The video detection camera shall be installed by factory-certified installers and shall be IMSA Level II Traffic Signal Technician certified. Proof of certifications shall be provided.

D Measurement

The department will measure Video Vehicle Detection System [Location] as a single lump sum unit of work, 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.0105.3102	Video Vehicle Detection System W North Ave & N 116th St	LS

Payment shall be full compensation for furnishing and installing the Video Detection Camera system on signal poles or mast arms as shown on the plans; for installing all cabinet equipment; and for aiming the camera.

312. Trial Wall Panel Secant Pile 59.06-Inch, Item SPV.0105.4008.

A Description

The work consists of installing a trial (non-production) secant pile wall panel to verify the proposed means and methods of drilled shaft installation for construction of secant pile walls, and drilled foundation shafts of the same size, included in the contract.

The trial secant pile wall panel must be installed by the same contractor and work crews who will perform the production drilled shaft installation work for the secant pile walls, and the drilled foundation shafts of the same size, on the contract. If the secant pile walls, and the drilled foundation shafts of the same size, will be constructed by separate contractors and work crews, install separate trial walls constructed by the separate contractors and work crews as described below. No additional payment will be made for separate or additional trial walls. The same equipment and installation procedures intended to be used for the production work on the contract and according to the accepted drill foundation shaft installation plan must be followed for construction of the trial secant pile wall panel.

Engineer, and UPRR engineer if applicable, acceptance of a successfully constructed trial secant wall panel is necessary prior to beginning the installation of any other secant piles, or drilled foundation shafts of the same size, included in the contract.

B Materials

Use materials for the trial panels as specified for the bid items Wall Secant Pile 59.06-Inch and Drilled Foundation Shaft 59.06-Inch, and as outline for production shafts in the plans. If different materials are specified in the different bid items, incorporate the stronger materials in the phase 2 shafts.

C Construction

Construct the trial secant pile wall panel as specified under the item Wall Secant Pile 59.06-Inch and Drilled Foundation Shaft 59.06-Inch and the accepted drilled foundation shaft installation plan. The trial secant pile wall panel shall consist of three overlapping 59.06-inch diameter drilled shafts, incorporating two phase 1 shafts and one phase 2 shaft. Dispose of obstructions as described under the special provision for obstructions. Reinforce the shafts as shown in the construction plans for Structure B-40-878. Provide and install 5 crosshole sonic logging (CSL) tubes in all shafts of the trial secant pile wall panel. Drilled shafts within the trial secant pile wall panel shall extend to a depth that is equal to the maximum depth of production shafts required for Structure B-40-878.

Dispose all soil excavation and excess materials removed from drilled shaft excavations for construction of the trial secant pile wall panel according to the requirements of the contract.

Excavate the trial secant pile wall panel and completely expose the entire face to a depth of 20-feet below the top of the trial secant pile wall panel. Provide safe access according to OSHA regulations for the engineer, and the UPRR engineer if applicable, to inspect the entire exposed face of the full-width trial secant pile wall panel for a period of at least three business days after the face of the trial secant pile wall panel is excavated and exposed. Provide shoring if necessary to accomplish this.

The trial secant pile wall panel will be subject to non-destructive testing as specified for the items Wall Secant Pile 59.06-Inch and Drilled Foundation Shaft 59.06-Inch, as called out in the non-destructive testing pay items and as directed by the engineer and the UPRR engineer. Acceptance of the trial secant pile wall panel will be as specified for the item Wall Secant Pile 59.06-Inch and Drilled Foundation Shaft 59.06-Inch. Upon acceptance by the engineer, and the UPRR engineer if applicable, remove the trial secant pile wall panel to at least elevation 717.0 or as otherwise directed by the engineer, and the UPRR engineer if applicable, and backfill the trial secant pile 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 pile wall panel shall be included in the cost of the trial secant pile wall panel.

D Measurement

The department will measure Trial Wall Panel Secant Pile 59.06-Inch as a single lump sum unit of work consisting of three consecutive overlapping secant shafts, acceptably completed.

Separate or additional, or unsuccessful or rejected trial secant pile wall panel installations, or trial secant pile wall panels not meeting specifications, will not be measured for payment nor 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.0105.4008	Trial Wall Panel Secant Pile 59.06-Inch	LS

Payment is full compensation for excavating and drilling the trial secant pile wall panel; handling and properly disposing of excavated material; removing obstructions; 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; performing, evaluating and reporting all non-destructive testing on all shafts; shoring; removal; backfilling and site restoration; and to otherwise meet these specifications.

313. Trial Wall Panel Tangent Pile 36-Inch, Item SPV.0105.4010.

A Description

The work consists of installing a trial (non-production) tangent pile wall panel to verify the proposed means and methods of drilled shaft installation for construction of tangent pile walls included in the contract.

The trial tangent pile 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 according to the accepted drill shaft installation plan must be followed for construction of the trial tangent pile wall panel.

Engineer acceptance of a successfully constructed trial tangent wall panel is necessary prior to beginning the installation of any other tangent piles included in the contract.

B Materials

All materials for the trial panels are to be as specified for the bid items Wall Tangent Pile 36-Inch.

C Construction

Construct the trial tangent pile wall panel as specified under the item Wall Tangent Pile 36-Inch and the accepted wall tangent pile drilled shaft installation plan. The trial tangent pile wall panel shall consist of three adjacent 36-inch diameter drilled shafts. Reinforce the shafts as shown in the construction plans for Structure R-40-567. Provide and install 3 crosshole sonic logging (CSL) tubes in at least one shaft of the trial tangent pile wall panel. Drilled shafts within the trial tangent pile wall panel shall extend to a depth that is equal to the maximum depth of production shafts required for Structure R-40-567.

Dispose all soil excavation and excess materials removed from drilled shaft excavations for construction of the trial tangent pile wall panel according to the requirements of the contract.

Excavate the trial tangent pile wall panel and completely expose the entire face to a depth of 20-feet below the top of the trial tangent pile wall panel. Provide safe access according to OSHA regulations for the engineer to inspect the entire exposed face of the full-width trial tangent pile wall panel for a period of at least three business days after the face of the trial tangent pile wall panel is excavated and exposed. Provide shoring if necessary to accomplish this.

The trial tangent pile wall panel will be subject to non-destructive testing as specified for the item Wall Tangent Pile 36-Inch. Acceptance of the trial tangent pile wall panel will be as specified for the item Wall Tangent Pile 36-Inch. Upon acceptance by the engineer, remove the trial tangent pile wall panel to at least elevation 717.0 or as otherwise directed by the engineer and backfill the trial tangent pile wall panel. Backfill the excavation to meet minimum standard compaction requirements per the standard specifications. Any necessary sheeting, shoring, and removal of the trial tangent pile wall panel shall be included in the cost of the trial tangent pile wall panel.

D Measurement

The department will measure Trial Wall Panel Tangent Pile 36-Inch as a single lump sum unit of work consisting of three consecutive adjacent tangent shafts, acceptably completed.

Unsuccessful or rejected trial tangent pile wall panel installations, or trial tangent pile wall panels not meeting specifications, will not be measured for payment nor 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.0105.4010	Trial Wall Panel Tangent Pile 36-Inch	LS

Payment is full compensation for excavating and drilling the trial tangent pile wall panel; handling and properly disposing of excavated material, providing and placing the concrete for tangent 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.

314. Track, Shoring and Existing Structure Monitoring UPRR, Item SPV.0105.4015.

A Description

The work consists of monitoring existing and temporary structures, shoring systems, and track carrying UPRR active track loading.

B Materials

B.1 General

Provide adhesive-backed reflective targets to affix to each rail of active track.

Utilize survey equipment for control and monitoring with an accuracy of 0.01’. GPS quality is not acceptable.

B.2 Submittals

B.2.1. Monitoring Plan

Submit a detailed monitoring plan for review and approval to the engineer and the UPRR engineer prior to beginning any work.

B.2.2. Contingency Plan

Provide an established contingency plan(s) to the engineer and the UPRR Engineer for review and approval in case shutdown values are reached. At that time, all construction operations shall stop until the matter is resolved. Provide detailed means and methods, with options if necessary in the contingency plan.

C Construction

C.1 Monitoring Program

Monitor UPRR active track, shoring and existing structures for settlement and/or displacement during an adjacent excavation, pile driving or other activity as directed by the engineer and the UPRR engineer. All construction shall maintain track, shoring and existing structures carrying active tracks within the following requirements:

Track, Shoring and Existing Structure Deflection/Settlement Limits

i. The top of rail shall not permanently deflect more than ¼ inch vertical or horizontal.
ii. Any point of the shoring shall not deflect more than 3/8" for shoring located at 18' from CL of track or closer.
iii. Any point of the shoring shall not deflect more than 1/2" for shoring located more than 18' from CL of track, unless the shoring is supporting a cut entirely located in Zone B.
iv. Any point of existing substructure supporting Railroad Track(s) shall not permanently deflect more than 3/8 inch vertical or horizontal.

Develop a plan view showing the location of all monitoring points, subject to the requirements of subsection C.1.2.

C.1.2 Targets

Affix monitoring targets to each rail of each track. Do not access track other than to initially place the track monitoring targets. Place monitoring targets such that monitoring is possible when a train is present. Monitoring during the passing of a train, however, is not required.

Affix monitoring targets at the top of the shoring and, if a braced system, at points of bracing. Monitor any existing substructures supporting Railroad Track(s) within the vicinity of the work with a minimum of 4 monitoring targets per existing substructure element. The distance between monitoring points on rail and shoring shall be spaced no more than 10 feet apart, and rail monitoring points must extend at least 20 feet beyond end of shoring system(s). Place monitoring points on rail and shoring no more than 10 feet apart, and extend rail monitoring points at least 20 feet beyond end of shoring system(s).

Remove targets once monitoring phase is complete.

C.1.3 Execution

Establish a benchmark in the vicinity of the construction. Establish locations for shooting elevations on the targets at each area of construction. Process survey data into an easy-to-interpret digital format and submit to the engineer and the UPRR engineer upon request. Format the document to keep all prior survey results in one, easy to reference location. Commence monitoring once any construction activity is within Zone A.

While shoring carries active tracks, perform monitoring no less than three times a day. Continue monitoring of new structure once the new structure carries active tracks no less than once a day for 7 days or as required by the engineer and the UPRR engineer.

C.2 Contingency Plans

Start the contingency countermeasures from the approved contingency plan once the limits of the Threshold and Shutdown values for horizontal and/or vertical deflection and/or settlement:

Track monitoring values:

(i) Threshold value = 1/8 inch permanent vertical or horizontal deflection.
(ii) Shutdown value = 1/4 inch permanent vertical or horizontal deflection.

Shoring Monitoring values:

(i) Shutdown value = 3/8 inch permanent horizontal deflection for shoring located at 18' or closer to track CL.
(ii) Shutdown value = 1/2 inch permanent horizontal deflection for shoring located further than 18' from track CL, unless the shoring is supporting a cut entirely located in Zone B.

Existing Structure Monitoring values:

(i) Shutdown value = 3/8 inch permanent vertical or horizontal deflection and/or settlement.

Anticipate the need to implement each Contingency Plan with required materials, equipment and personnel. Once the Threshold value is met, determine the appropriate contingency Plan and immediately discuss this plan with, and receive confirmation from, the engineer and the UPRR engineer. Once the Shutdown value is exceeded, stop all project work and commence the chosen contingency plan shall commence. The engineer and the UPRR engineer may choose to allow and/or require the immediate implementation of specific approved contingency plans once the Shutdown value is exceeded.

D Measurement

The department will measure Track, Shoring and Existing Structure Monitoring UPRR as a single lump sum unit of work consisting of monitoring track, shoring and structures carrying active UPRR track loading, 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.0105.4015	Track, Shoring and Existing Structure Monitoring UPRR	LS

Payment is full compensation for affixing targets; surveying and recording horizontal and vertical deflections; reporting deflections; submitting monitoring and contingency plans; undertaking and completing contingency countermeasures; and to otherwise meet these specifications.

315. Control of Water, Item SPV.0105.5245.

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

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 according to ASTM D1586. Piezometers shall be constructed and developed according 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 according 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 according 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 according 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 according to standard spec 204.3.3.3 and according 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.0105.5245	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.

316. Rectangular Rapid Flashing Beacon (RRFB) System Station 730+00 NOG Right, Item SPV.0105.6001; Rectangular Rapid Flashing Beacon (RRFB) System Station 734+00 NOB Right, Item SPV.0105.6002; Rectangular Rapid Flashing Beacon (RRFB) System Station 734+00 NOB Left, Item SPV.0105.6003; Rectangular Rapid Flashing Beacon (RRFB) System Station 726+00 NOB Right, Item SPV.0105.6004; Rectangular Rapid Flashing Beacon (RRFB) System Station 725+50 NOG Right, Item SPV.0105.6005; Rectangular Rapid Flashing Beacon (RRFB) System Station 725+50 NOG Left, Item SPV.0105.6006; Rectangular Rapid Flashing Beacon (RRFB) System Station 732+00 NOA Right, Item SPV.0105.6007; Rectangular Rapid Flashing Beacon (RRFB) System Station 732+00 NOA Left, Item SPV.0105.6008; Rectangular Rapid Flashing Beacon (RRFB) System Station 122+50 NO Right, Item SPV.0105.6009; Rectangular Rapid Flashing Beacon (RRFB) System Station 738+00 NOC Right, Item SPV.0105.6010; Rectangular Rapid Flashing Beacon (RRFB) System Station 738+00 NOC Left, Item SPV.0105.6011.

A Description

This work shall consist of furnishing and installing to the department a solar powered rectangular rapid flashing beacon (RRFB) system consisting of multiple assemblies as described herein and as shown in the plans. Each assembly shall be solar powered and pedestrian activated. The assemblies shall be wirelessly controlled and multiple units shall be synchronized. This specification is according to requirements contained in FHWA interim approval 1A-21 dated March 20, 2018 for flashing requirements and beacon operation.

B Materials

Furnish a RRFB system with multiple assemblies. Each assembly may consist of, but not limited to, light indications, and electrical components (wiring, solid-state circuit boards, etc). An assembly may include the following items:

(1) Light Indications

1. Each indication shall be a minimum size of approximately 7” wide x 3” high with 8 high power LEDs.
2. Two indications shall be installed on an assembly facing in the direction of approaching vehicular traffic. The two indications shall be aligned horizontally, with the longer dimension of the indication horizontal, and a minimum space between the two indications of approximately 7” measured from inside edge of one indication to inside edge of second indication.
3. A 6 LED or approved equal indication shall be installed on an assembly facing in the direction of approaching pedestrian traffic to serve as a confirmation for the pedestrian that the system has been activated.
4. The outside edges of the two indications, including any housing, shall not protrude beyond the outside edges of the integral signage of the assembly.
5. The light intensity of the indications shall be certified to meet the minimum specifications of the Society of Automotive Engineers (SAE) standard J595 Class 1(Directional Flashing Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles) dated January 2005 and be available upon request.
6. Each indication shall be located between the bottom of the crossing warning sign and the top of the supplemental downward diagonal arrow plaque.
7. All exposed hardware shall be anti-vandal.
8. All individual components of the system shall be replaceable to allow for easy field repair and maintenance.
9. To minimize excessive glare during nighttime conditions, an automatic signal dimming device should be used to reduce the brilliance of the RRFB indications during nighttime conditions.

(2) Sign

1. All signs shall be supplied and installed under a separate bid item. However, the assemblies must be constructed to allow the appropriate space for the installation of the signs in the field.

(3) Control Circuit

1. The control circuit shall have the capability of independently flashing up to two independent outputs. The LED light outputs and flash pattern shall be FHWA approved and engineer programmed.
2. The controller shall be one of the following:
   - web enabled to allow for remote programming and system diagnostics. Including flash time, flash pattern and report system information, such as battery voltage, and temperature.
   - on-board user interface that provides system diagnostics and allows system setting changes
   - Approved equal
3. The flashing output shall have 75 flashing sequences per minute during each 800 millisecond flashing sequence, the left and right RRFB indications shall operate using the following sequence:
   a) **The RRFB indication on the left-hand side shall be illuminated for approximately 50 milliseconds.**
      Both RRFB indications shall be dark for approximately 50 milliseconds.
   b) **The RRFB indication on the right-hand side shall be illuminated for approximately 50 milliseconds.**
      Both RRFB indications shall be dark for approximately 50 milliseconds.
   c) **Both RRFB indications shall be illuminated for approximately 50 milliseconds.**
      Both RRFB indications shall be dark for approximately 50 milliseconds.
   d) **The RRFB indications for the advance RRFB shall be illuminated for approximately 50 milliseconds.**
      RRFB indications shall be dark for approximately 50 milliseconds.

4. Flash rates with the frequencies of 5 to 30 flashes/second shall not be used to avoid inducing seizures.
5. The control circuit shall be installed in an IP67 NEMA rated enclosure or NEMA 3R.
6. All circuit connectors shall conform to Ingress Protection, IP-67 rating, dust proof, and protected from temporary immersion in water up to 3 feet deep for 30 minutes. Connectors shall be Deutsch DTM series, Carmanah RRFB or approved equal
7. All individual components of the system shall be replaceable to allow for easy field repair and maintenance.

(4) Beacon Operation:

1. The RRFB shall be normally dark, shall initiate operation only upon pedestrian actuation, and shall cease operation at a predetermined time after the pedestrian actuation or, with passive detection, after the pedestrian clears the crosswalk.
2. All RRFB units associated with a given crosswalk (including those with an advance crossing sign, if used) shall, when actuated, simultaneously commence operation of their rapid-flashing indications and shall cease operation simultaneously.
3. If pedestrian pushbutton detectors (rather than passive detection) are used to actuate the RRFB indications, a Push Button To Turn On Warning Lights (R10-25) sign shall be installed explaining the purpose and use of the pedestrian pushbutton detector. See signing plan
4. The duration of a predetermined period of operation of the RRFBs following each actuation should be based on the procedures provided in Section 4E.06 of the 2009 MUTCD for the timing of pedestrian clearance times for pedestrian signals.
5. The predetermined flash period shall be immediately initiated each and every time that a pedestrian pressing a pushbutton detector
6. A small pilot light may be installed integral to the RRFB or pedestrian pushbutton detector to give confirmation that the RRFB is in operation.

(5) Battery

1. The Battery shall be a 12VDC Absorbed Glass Mat (AGM) sealed lead-acid, maintenance-free battery.
2. The Battery shall be rated at 45AH minimum and shall conform to Battery Council International (BCI) specifications or battery system that is 14Ah or 48AR Gel Battery and is suitable for usage model and system autonomy requirements or approved equal.
   All batteries shall be sealed in a plastic film to provide moisture and corrosion resistance.
3. The Battery shall have a minimum operating temperature range of -76º to 140ºF (-60º to 60ºC).
4. All battery connectors shall conform to Ingress Protection, IP-67 rating, dust proof, and protected from temporary immersion in water up to 3 feet deep for 30 minutes. Connectors shall be Deutsch DTM series or approved equal
5. The Battery shall be solar-charged with a capacity up to 30 days of autonomy without sunlight, varying with ambient temperature and number of activations. Solar calculations shall be provided

(6) Wireless Radio

1. Radio control shall operate on 900 MHz frequency hopping spread spectrum network or 2.4 GHz ISM band mesh network radio
2. Radio shall integrate with communication of RRFB systemcontrol circuit to activate light indications from pushbutton input.

3. The Radio shall synchronize all of the remote light indications so they will turn on within 120 msec of each other and remain synchronized throughout the duration of the flashing cycle.
4. Radio systems shall operate from 3.6 vdc to 15vdc
5. The Radio unit shall have an LCD display to program flash time and communicate system information, such as battery voltage, battery temperature and solar charge level an onboard diagnostics.
6. All individual components of the system shall be replaceable to allow for easy field repair and maintenance.

(7) Pushbutton

1. The pushbutton shall be capable of continuous operation over a temperature range of -30 degrees F to 165 degrees F (-34 degrees C to 74 degrees C).
2. Pushbutton shall be ADA compliant.
3. Pushbutton facing sidewalk area that is accessible to wheelchair person

(8) Solar Panel

1. The Solar Panel shall provide a minimum of 10 watts and maximum of 55 watts at peak total output or approved equal.
2. The Solar Panel shall be affixed to an aluminum plate and bracket, at minimum angle of 45 degrees to allow for maximum solar collection and optimal battery strength or approved equal.
3. The Solar Panel Assembly (panel, plate and bracket) shall be mounted on a pole cap mount or aluminum mounting bracket, to allow for maximum solar collection and optimal battery strength or approved equal.
4. The Solar Panel shall have a minimum operating temperature range of -40º to 185ºF (-40º to 85ºC).

(9) Pedestal Shaft

1. Shall meet the requirements as set forth in standard spec 657.2.4.
2. Shall be a standard 4.5" OD aluminum pedestal pole. Supplied with one end threaded for easy installation into a pedestal base.
3. Shall be a 13’ Schedule 80 pipe raw aluminum
4. Incidental to RRFB
5. Exception – Those signs shown on light pole do not require pedestal shaft or footing. See signing plan for locations

(10) Pedestal Base

1. Shall meet the requirements as set forth in standard spec 657.2.5.
2. The pedestal base shall be a cast aluminum pedestals mount on a concrete base attached by four internal anchor bolts imbedded in the base.
3. The Base shall have a large 8.5" square hand hole cover allowing access to the interior of the base.
4. Incidental to RRFB

(11) Concrete Base

1. Shall meet the requirements as set forth in standard spec 654.2.1, as applicable.
2. The concrete base shall be a Type 1 base (WisDOT bid item 654.0101) or approved equivalent.
3. Incidental to RRFB

(12) Anchor Bolts

1. The anchor bolts shall be galvanized steel 1" x 42".
2. Set of 4 includes lock washer and nut.
3. Incidental to RRFB

C Construction

The RRFB system will consist of multiple assemblies to be constructed by the contractor as shown on the plans.

D Measurement

The department will measure furnishing to the department a rectangular rapid flashing beacon (RRFB) system as a lump sum, as shown on the plans, acceptable 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
SPV.0105.6001	Rectangular Rapid Flashing Beacon (RRFB) System Station 730+00NOG Right	LS
SPV.0105.6002	Rectangular Rapid Flashing Beacon (RRFB) System Station 734+00NOB Right	LS
SPV.0105.6003	Rectangular Rapid Flashing Beacon (RRFB) System Station 734+00NOB Left	LS
SPV.0105.6004	Rectangular Rapid Flashing Beacon (RRFB) System Station 726+00NOB Right	LS
SPV.0105.6005	Rectangular Rapid Flashing Beacon (RRFB) System Station 726+50NOG Right	LS
SPV.0105.6006	Rectangular Rapid Flashing Beacon (RRFB) System Station 726+50NOG Left	LS
SPV.0105.6007	Rectangular Rapid Flashing Beacon (RRFB) System Station 732+00NOA Right	LS
SPV.0105.6008	Rectangular Rapid Flashing Beacon (RRFB) System Station 732+00NOA Left	LS
SPV.0105.6009	Rectangular Rapid Flashing Beacon (RRFB) System Station 122+50NO Right	LS
SPV.0105.6010	Rectangular Rapid Flashing Beacon (RRFB) System Station 738+00NOC Right	LS
SPV.0105.6011	Rectangular Rapid Flashing Beacon (RRFB) System Station 738+00NOC Left	LS

NOTE: The RRFB at Station 122+50 NO on North Ave westbound in advance of the NB entrance ramp shall be interconnected by wireless to the two RRFB's at Station 732 +00 NOA at the NB entrance ramp to IH 41. When the button is pushed at the ramp crossing it shall activate the RRFB in advance on North Ave. The advance RRFB along the exit ramps (Station 726 +00 +/-and Station 730 +00 +/_shall be interconnected by wireless with the RRFB's at the ramp crossing.

Payment is full compensation for providing and installing a fully operational RRFB system consisting of multiple assemblies; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the contract work.

317. Chevron Solar Powered Sign System Assembly Ramp MA, Item SPV.0105.6020; Chevron Solar Powered Sign System Assembly Ramp NOB, Item SPV.0105.6021; Chevron Solar Powered Sign System Assembly Ramp NOG, Item SPV.0105.6022.

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:

MA ramp - 4 chevrons
NOB ramp – 7 chevrons
NOG ramp – 6 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, Decker Supply LED 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, W1-8 (30 x 36) signs, radar device, solar panel, radio and electrical components (wiring, battery, solid-state circuit boards, etc). See signing plan for locations and sign shown.

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 activiate 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™ or Decker Supply Blinkersign or approved equal conforming to the 2009 Federal Highway Highway MUTCD section 2A.07 on retro reflectivity and illumination or approved equal.
b. A high power 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. Type F sheeting per standard spec 637.2.2.2 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. Anti-vandal fasteners to mount components to sign and sign to fixture on all sign assemblies.
h. TAPCO # 2180 Day-Viz or Decker Supply brand 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 I 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 or approved equal, Use dust proof connectors, and protect from temporary immersion in water up to 1 meter deep for 30 minutes. Supply Deutsch DTM series connectors or approved equal.
j. Supply a TAPCO # 3012 LED, Decker Supply brand 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 or approved equal rating, dust proof, and protected from temporary immersion in water up to 1 meter deep for 30 minutes.
f. A TAPCO # 2538-30 or Decker Supply brand 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 or approved equal , 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, Decker Supply 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 or approved equal.
e. Furnish only TAPCO # 2772-2 solar panels, Decker Supply 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 a lump sum, acceptably furnished and delivered, as shown on the plans.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.6020	Chevron solar powered sign system assembly Ramp MA	LS
SPV.0105.6021	Chevron solar powered sign system assembly Ramp NOB	LS
SPV.0105.6022	Chevron solar powered sign system assembly Ramp NOG	LS

Payment of the item Chevron solar powered sign system assembly is full compensation for furnishing and installing the Chevron solar powered sign system assembly, for testing, for the mounting hardware, and for preserving and resetting assembly location stakes, as indicated on the plans and for all incidentals necessary to complete the work. The department will pay separately for required sign supports.

SEF 13_0327

318. Control of Water Storm Sewer, 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

Shaft Station 438NS+00 to Shaft Station 455NS+00: 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, curb walls, 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 according to ASTM D1586. Piezometers shall be constructed and developed according 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 according 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 according 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 according 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 according to standard spec 204.3.3.3 and according to NR 812 Wisconsin Administrative Code, whichever is more stringent.

D Measurement

The measurement of Control of Water Storm Sewer will be on 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 measured quantities at the contract unit price under the following bid item.

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.8098	Control of Water Storm Sewer	LS

Payment for Control of Water Storm Sewer shall be 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.

319. Timber Lagging, Item SPV.0110.4001.

A Description

Work under this item consists of furnishing, delivering, and installing all timber lagging for soldier pile and lagging walls. Perform work according 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 by the 1000 foot board measure, 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.0110.4001	Timber Lagging	MBM

Payment is full compensation for Timber Lagging; for furnishing, framing, installing, and the timber lagging.

320. Field Office Special, Item SPV.0135.0100.

A Description

This special provision describes furnishing, equipping, and maintaining field office facilities.

B Materials

Obtain engineer approval before providing an existing office building, or an existing building converted to office-type use. Ensure that the building meets all applicable health, fire, and building codes and standards. Provide first aid kits, fire extinguishers, and all other supplies required to meet all applicable health, fire, and building codes and standards. The field office must be located less than four miles from the 1060-33-84 project limits with all floor space located on the first floor.

Provide; maintain in clean good working condition; and stock lavatory with sanitary supplies, including a sufficient supply of soap; hand sanitizer; toilet paper; and paper towels. The on-site sanitary facilities must meet Federal, State, and local health department requirements at all times.

Equip these facilities with suitable natural and light emitting diode (LED)DSL lighting. Also provide adequate heating and air conditioning equipment and fuel necessary to maintain a temperature range from 68 F to 80 F during the hours occupied.

Equip:

- Doors and windows with locks.
- Exterior doors with dead bolt locks.
- Windows with exterior screens to allow adequate ventilation.

Provide at least 10,000 square feet interior useable floor space, including shared spaces, such as plan review areas, conference rooms, storage areas, meeting areas, hallways, and restrooms. Provide a minimum of 1,000 square feet of storage area.

Meeting Area 1: Obtain engineer’s approval of a suitably sized, open meeting area, including tables and folding chairs to accommodate regularly scheduled meetings of 50 people. Include a wireless ceiling mounted 1080-pixel liquid crystal display projector with a minimum of 3,000 lumens, 6’ x 8’ projector screen, a 4’ x 8’ white board with dry erase markers and erasers, and phone jack with phone service.

Meeting Area 2: Obtain engineer’s approval of a suitably sized, open meeting area, including tables and folding chairs to accommodate regularly scheduled meetings of 20 people. Include a 4’ x 8’ white board with dry erase markers and erasers, a 50-inch minimum wall mounted tv/monitor, and phone jack with phone service.

Provide 50 workstations with a lockable desk and drawers. Work stations shall be a minimum 36 SF. Provide 6 private rooms, additionally equipped with a four-shelf bookcase, a large lockable metal storage cabinet, and a 48" x 36" whiteboard with dry-erase markers and erasers. Supply the interior doors to these rooms with locksets. Rooms must be a minimum of 100 SF.

Provide one ergonomically correct office chair in working condition, with, at a minimum, the following features, for each workstation:

- Five-legged base with casters.
- High backrest.
- Seat adjustable from 15 inches to 22 inches from the floor with a "seamless waterfall, rounded front edge.

For all work stations, provide unlimited high-speed internet service for exclusive department use via cable or DSL connection with a modem/router and capable of supporting cloud enabled file sharing, voice over internet protocol (VoIP), video conferencing, and web-based applications. Ensure that system meets the following:

- Includes a wireless network for the field office.
- Can accommodate IPSec based VPN products.
- Has a broadband bandwidth range with minimum connection speed of 100 Mbps + 1/2 Mbps per user download and 20 Mbps upload. Coordinate network setup at the leased office with the WisDOT network team.

Provide and install into the field office telephone exchanges with local and long-distance service or VoIP phone network. The voice exchanges are to be configured so that the incoming calls for any voice exchange utilize an open exchange. The telephones and the communication services are for the sole use of the department staff.

Provide two new Windows 10 compliant, high-capacity color printer/photocopier/scanners capable of printing and copying up to 11" x 17" paper, with the ability to perform duplexing, sorting, stapling, and multiple sheet auto feeding, with a built-in scanner with the capability to scan black and white and color up to 11" x 17" at a minimum of 1200dpi, and with a direct or field office wireless network connection, as approved by the engineer.

Provide and maintain an adequate supply of bottled drinking water. Provide two refrigerators with a minimum 18 cubic foot capacity, including a freezer. Provide two microwave ovens with a minimum 1.1 cubic foot capacity, a minimum of 1000 watts, and a removable glass turntable.

Maintain the field office equipment and provide supplies for the photocopiers as requested by the engineer.

Provide for the professional cleaning of the field office during regular business hours once per week.

Provide carpet runners at all entrances. Clean weekly and replace as necessary or as directed by the engineer.

Provide clearly marked recycling and waste receptacles within the field office, and separate recycling and waste dumpsters near the field office. Cover outdoor containers to keep out rain, and snow. Provide regularly scheduled recycling and waste pick-up.

Include an adjacent, no-fee, lighted parking lot large enough to accommodate 75 vehicles, as approved by the engineer. Maintain the parking lot and egress, including snow removal.

C Construction

Do not combine field offices, or combine them with, or attach them to, any buildings used by the contractor, unless the engineer allows in writing. The contractor may furnish, if the contract allows, the field offices jointly in cooperation with other contractors on designated projects.

Do not begin construction operations requiring the use of the field offices by the department until the required field offices are approved by the engineer, furnished, fully equipped, and made ready for use as the engineer directs.

The field office shall remain available for department until the engineer approves its closure. These field facilities are for the sole use of the department and upon contract completion remain the contractor’s property.

D Measurement

The department will measure Field Office Special by the month, or partial month where applicable, 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.0135.0100	Field Office Special	MON

Payment is full compensation for providing, equipping, securing, cleaning and maintaining the facility and associated parking lot; for telecommunications equipment, installation, and service fees; and for providing all incidentals, including bottled water, refrigerator/freezers, microwaves, utilities, fuel, safety, ventilation, toilet facilities, and office supplies as required, either independently or jointly, for the time specified in section C.

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321. Vibration Monitoring, Item SPV.0135.0601.

A Description

This special provision describes developing a vibration monitoring plan, deploying seismographs for continuous monitoring and recording, and submittal of required documentation.

The contractor shall conduct and document a crack and damage survey of any buildings or structures identified in the crack and damage survey special provision of this contract prior to performing any vibration monitoring. The contractor is responsible for arranging with the property owner the right of entry to their property, to install, maintain, and remove vibration monitoring equipment.

Any damage resulting from excessive vibration due to the contractor’s operations or claims of damage during construction is the responsibility of the contractor to resolve.

B Equipment

Use seismographs meeting the requirements of Wisconsin Department of Safety and Professional Services (SPS)307.43, Wisconsin Administrative Code, that are continuous data recorders supplied with all accessories for making vibration observations.

C Construction

C.1 General

Vibration Monitoring shall be performed if a building/structure is located within 200 feet of a vibration-inducing construction operation. Establish recordings at the closest location affected by the vibration-inducing construction operation by placing seismograph(s) on a stable surface within 3 feet of the building/structure.

C.2 Monitoring Plan

Submit a monitoring plan that includes the following:

- Location of each vibration-inducing construction operation 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
- A recommended maximum safe peak particle velocity threshold
- Mitigation plan to reduce potentially excessive vibration levels to acceptable limits.

Obtain the engineer's acceptance of the monitoring plan prior to performing any vibration-inducing construction operation on the project.

C.3 Monitoring and Recording

Conduct monitoring procedures conforming to SPS 307.44 and as follows: Take seismograph readings before construction operations to establish an ambient or background index. Place seismographs to monitor all vibration-inducing construction operations per the accepted monitoring plan.

Monitor the following construction operations for their entire duration:

- Bridge demolition
- Bridge and sign bridge pile driving
- Sheet pile installation and removal

- Drilled Shaft installation
- MSE wall compaction
- All compaction activities utilizing large vibratory rollers
- Any other activities that may cause vibration damage to adjacent buildings, structures, or utilities.

If construction operations exceed the maximum peak particle velocity limits as established in the contractor's monitoring plan, according to SPS 304.7, stop the construction operation in progress and notify the engineer. Implement alternate construction methods to produce results within the allowable peak particle velocity limits.

C.4 Reporting

Furnish a monthly report of data recorded to the engineer.

Include the following in the report:

- Date vibration monitoring operations began for each location with an associated compilation of total days currently monitored at each site
- Identification of vibration inducing construction operations 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 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
- Contractor documentation of any operational changes necessary to reduce vibration below nuisance levels

D Measurement

The department will measure Vibration Monitoring acceptably completed by calendar month when an active seismograph is recording in a given month or a portion thereof, according to the accepted monitoring plan or as approved by the engineer.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0135.0601	Vibration Monitoring	MON

Payment of the item Vibration Monitoring is full compensation for coordination with property owners, for providing, setting up and removal of all seismographs according to the accepted monitoring plan, providing the vibration monitoring plan including any monthly updates, performing continuous monitoring and recording of vibrations, and for providing the monthly reports and all other required documentation.

322. Temporary Wall Wire Faced Mechanically Stabilized Earth, Item SPV.0165.4005.

A Description

This special provision describes designing, furnishing materials and erecting a permanent earth retention system according 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 Mechanically Stabilized Earth (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.

B Materials

B.1 Proprietary Wall Systems

The supplied wall system must be from the department's approved list of Temporary Wire Faced Mechanically Stabilized Earth Wall systems. Proprietary wall systems must conform to the requirements of this specification and be pre-approved for use by the department's Bureau of Structures. The department maintains a list of pre-approved proprietary 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 be eligible for use on this project, a system must have been pre-approved by the Bureau of Structures and added to that list prior to the bid closing date. To receive pre-approval, the retaining wall system must comply with all pertinent requirements of this provision and be prepared according 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 Bureau of Structures, Structures Maintenance 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 submit a design and supporting documentation as required by this special provision, for review and acceptance by the department, to show the proposed wall design is in compliance with the design specifications. The submittal shall include the following items for review: detailed plans and shop drawings, complete design calculations, explanatory notes, supporting materials, and specifications. The detailed plans and shop drawings shall include all details, dimensions, quantities and cross-sections necessary to construct the walls. Submit electronically to the engineer and Bureau of Structures for review and acceptance. Submit no later than 60 days from the date of notification to proceed with the project and a minimum of 30 days prior to the date proposed to begin wall construction.

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 WisDOT 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 wall shall be in compliance with the current American Association of State Highway and Transportation Officials LRFD (AASHTO LRFD) Bridge Design Specifications with latest interim specifications for Mechanically Stabilized Earth Walls, WisDOT's current Standard Specifications for Highway and Structure Construction (standard spec), 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 according to Table 11.5.7-1 in AASHTO LRFD.

Design and construct the walls according 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 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 according 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 wall by the contractor shall consider the internal and compound stability of the wall mass according 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. Sample analyses and hand calculations shall be submitted to verify the output of any software used. The design calculations and notes shall clearly indicate the Capacity to Demand Ratios (CDR) for all internal and external stabilities as defined in AASHTO LRFD.

The wall facings shall be designed according to AASHTO 11.10.2.3. A fine metallic screen and a geotextile shall be used at the front face of the wall to retain the fines of the soil mass.

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 the wall. All soil reinforcement layers shall be connected to wire facing panels. 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 24 inches. The uppermost layer of the reinforcement shall be located between 6 inches and 12 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.

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, , as described in Chapter 14 of the WisDOT LRFD Bridge Manual and AASHTO LRFD Section 11.

Soil reinforcement shall be fabricated or designed to avoid piling, drainage structures or other obstacles in the fill without field modifications. Unless approved by the Bureau of Structures cutting or altering of the basic structural section of either the strip or grid at the site is prohibited, a minimum clearance of 3” shall be maintained between any obstruction and reinforcement, and splicing steel reinforcement is not allowed.

The minimum embedment of the MSE wall shall be 1 foot 6 inches, or as given on the contract plan. Step the wall to follow the general slope of the ground line. Frost depth shall not be considered.

B.3 Wall System Components
Materials furnished for wall system components under this contract shall conform to the requirements of this specification. All documentation 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:

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 A1064 and be welded into the finished configuration according to ASTM A1064. 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.

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 A572 Grade 65 minimum. Tie strips shall be shop fabricated of hot-rolled steel meeting the requirements of ASTM A1011 Grade 50.

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 A1064 and be welded into the finished configuration according to ASTM A1064. 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.

4. Fasteners

High strength bolts meeting the requirements of AASHTO M164 or equivalent.

5. Connector Pins and Mat Bars

Connector pins and mat bars fabricated from cold drawn steel wire meeting the requirements of ASTM A82.

6. Metallic Screen

Provide a steel metallic screen. The metallic screen should have an approximate opening of 1/4" and be made of 0.025" (minimum) gauge wire.

B.3.2 Geotextile

Geotextile 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. Deliver in a protective wrap and keep protected from ultraviolet light until incorporated into the work.

B.3.3 Backfill

Furnish and place backfill for wall as shown on the plans and as herein provided.

Use natural sand or a mixture of sand with gravel, crushed gravel or crushed stone. Do not use 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	5.0 – 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[1]	30 degrees min. (At 95.0% of maximum density and optimum moisture, per AASHTO T99, or as modified by C.2)

[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 Excavation and Backfill

Excavation and preparation of the foundation for the MSE wall shall be according 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.

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, after compaction.

Conduct backfilling operations in such a manner as to prevent damage or misalignment of the wall facings, 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. Place and compact material beyond the reinforced soil zone to allow for proper compaction of material within the reinforced zone. 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 wall facing. The engineer may order the removal of any large or heavy equipment that may cause damage or misalignment of the wall facing.

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).

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. Do not use sheepsfoot or padfoot rollers within the reinforced soil zone.

A minimum of 3 inches of backfill shall be placed over the MSE reinforcement prior to working above the reinforcement.

C.3 Wall Components

C.3.1 General

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 angle is shown on the plans. The adequacy of the skewed reinforcement in such a case shall be addressed by supporting calculations.

When using a temporary wall for four (4) months or more or when the installation of a permanent wall facing will not occur for four (4) 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.3.2 Tolerances

The overall vertical tolerance of the wall and the horizontal alignment tolerance shall not exceed 3 inches per 10 feet for permanent 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.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.
8. A proposed sequencing plan of wall construction operations and random test locations.

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 Grading Technician I (GRADINGTEC-I); or Assistant Certified Technician, Grading (ACT-GRADING); or Aggregate Technician I (AGGTEC-I); or Assistant Certified Technician, Aggregate (ACT-AGG) present at the each grading site during all wall backfill placement, compaction, and nuclear testing activities. Have a HTCP Nuclear Density Technician I

(NUCDENSITYTEC-I) or Assistant Certified Technician, Nuclear Density Gauge Operator (ACT-NUC) 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:
https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/default.aspx

Ensure that the nuclear 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 AASHTO T310 and CMM 8-15 for density testing and gauge monitoring methods.

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 Documentation

(1) Document all observations, inspection records, and process adjustments daily. Submit test results to the department's project materials coordinator on the same day they become available.

(2) Use forms provided in CMM Chapter 8. Note other information in a permanent field record and as a part of process control documentation enumerated in the contractor's quality control plan. Enter QC data and backfill material certified report results into the applicable materials reporting system (MRS) software within 5 business days after results are available.

(3) Submit final testing records and other documentation to the engineer electronically within 10 business days after all contract-required information becomes available. The engineer may allow submission of scanned copies of hand-written documentation.

C.4.5 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 in each lift. 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 2,250 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.4.6 Department Testing

C.4.6.1 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.4.6.2 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.4.6.3 Independent Assurance (IA)

(1) Independent 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:

7. 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.4.6.4.

C.4.6.4 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 E178 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 Soils Engineer two working days to review the foundation.

D Measurement
The department will measure the Temporary Wall Wire Faced Mechanically Stabilized Earth bid items by the square foot acceptably completed at locations the plans show, measured as the area of exposed face in the plane of the wall from the front face ground line of the wall to the retained grade. Temporary Walls used for staged construction in multiple configurations will be measured once based on the configuration with the largest area of exposed face.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0165.4005	Temporary Wall Wire Faced Mechanically Stabilized Earth	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 wall system, constructing the retaining system including drainage system; providing backfill, backfilling, compacting, developing/completing/documenting the quality management program, performing compaction testing; covering geotextile, and for furnishing all tools, labor, equipment, and incidentals necessary to complete the contract work.

Payment limit for all walls is the line of minimum embedment per section B.2. No payment will be made for additional embedment detailed for construction purposes.

Parapets, railings, vehicle barriers and its support, abutment bodies and other items above the wall will be paid for separately. Concrete facings, facing leveling pads or footings, and copings will be paid separately.

Any required topsoil, fertilizer, seeding or sodding and mulch will be paid for at the contract unit price for those items.

SPV.0165.4005 (20190917)

323. Prestressed Precast Concrete Wall Panel R-40-567, Item SPV.0165.4010.

A Description
This special provision describes constructing precast prestressed concrete wall panels with heights and patterns as shown on the plans including product design, fabrication, transportation, erection, anchorage and other related items. The design life of the precast concrete wall panels and all panel components shall be 75 years.

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.

B Materials
B.1 Design Requirements
It is the responsibility of the contractor to submit a design and supporting documentation as required by this special provision, for review and acceptance by the department, to show the proposed wall design is in compliance with the design specifications. The submittal shall include the following items for review: erection drawings, production drawings, complete design calculations, explanatory notes, supporting materials, and specifications.

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 strand quantities; initial prestress forces; material strengths; estimated cambers; and methods for storage and transportation.

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 WisDOT project identification number and structure number. Design calculations and notes shall be on 8-1/2 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, experienced in the design of Prestressed Precast Concrete Wall Panels.

The design of the Prestressed Precast Concrete Wall Panel shall conform to the current American Association of State Highway and Transportation Officials LRFD (AASHTO LRFD) Bridge Design Specifications with latest interim specifications for Mechanically Stabilized Earth Walls, WisDOT's current Standard Specifications for Highway and Structure Construction (standard spec), 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.

Design and construct the panels per the lines, grades, heights and dimensions shown on the plans, as herein specified, and as directed by the engineer. Design panels and components to withstand initial handling, transportation, and erection stress limits; dead loads; wind load; thermal stresses; and other loads specified. Although the cavity shall remain free of backfill and debris, consider backfill within the cavity not exceeding the finish grade elevation at the front face of wall for design.

The minimum Strength III design wind pressure shall be 40 pounds per square foot in the windward direction and 20 pounds per square foot in the leeward direction (suction), unless specified otherwise on the plans. The minimum Service I design wind pressure shall be 15 pounds per square foot in the windward direction and 8 pounds per square foot in the leeward direction (suction), unless specified otherwise on the plans. All wind loads shall be applied perpendicular to the wall face.

In addition to the above loads also design inserts and connection assemblies for the loads indicated on the plans and a horizontal force equal to at least 20% of the dead weight of the panel and coping.

Provide a minimum prestress of 250 pounds per square inch after losses and minimum temperature and shrinkage reinforcement as required by AASHTO LRFD 5.10.8.

B.2 Submittals

Submit on request reports on materials, compressive strength tests on concrete and water absorption tests on units.

Submit to the engineer, for acceptance and placing on file before commencing, one set of the submittals that the contractor has checked. In addition, provide two sets to the Region office, Sean Race, (414) 750-2380 and one set to the Bureau of Structures for acceptance and inspection purposes. Only after acceptance by the Region may panel fabrication commence. 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 acceptance, furnish as many copies of submittals as required. Submit no later than 60 days from the date of notification to proceed with the project and a minimum of 30 days prior to the date proposed to erect the wall panels.

The submittals become a part of the contract, provided any differences between the production drawings and the plans are approved by the engineer and provided those changes are made at no additional expense to the department.

After initial submittal and acceptance, make no deviation from the production drawings or changes to them without the engineer's further review and acceptance.

The engineer's review of submittals is 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.

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
Furnish materials conforming to the following:

Material	Standard Spec Section
Masonry Anchors	502
Coated High Strength Bar Steel Reinforcement	505
Pretensioning Reinforcement	503
Welded Steel Wire Fabric for Concrete Reinforcement	505
Structural Steel and Miscellaneous Metals	506
Elastomeric Bearing Pads	506

Galvanize or furnish stainless steel materials for all hardware incorporated into the finished structures. (Not including reinforcement bars or pretensioning reinforcement.)

B.3.2 Concrete
Furnish concrete as specified in standard spec 501 and 716.

Ensure concrete attains a minimum 28-day compressive strength of 5,000 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 T23, except cure the cylinders with the member until release strength is obtained, then cure the cylinders according to AASHTO T23.

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 precast 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.

Determine proportions for the mix within the following limitations:

Proportion	Limitation
Water cement ratio	0.45 max.
Cement content	610 lbs/cy min.
Air content of concrete	3.5%-6.0%
Slump of mixed concrete	4 inches max.

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 at their option if the ambient air temperature is less than 70 degrees F (21 degrees C).

Do not add more admixtures or water after mixing is complete.

Use admixtures that do not have significant chlorides or chlorides added during manufacture.

Use admixtures that are compatible with all ingredients of the concrete mixture.

B.3.3 Pretensioning Reinforcement
Use high tensile strength, 7-wire strands conforming to ASTM A416, grade 270.

B.3.4 Lifting Devices
The type, number and locations of lifting devices and the method of handling the Prestressed Precast Concrete Wall Panels is determined by the fabricator and approved by the engineer. Lifting devices shall not be located on the exposed front face of the panel.

B.3.5 Accessories and Inserts
Furnish materials conforming to the following:

Item	Material
Shims	High-density plastic or galvanized steel, 1/8-inch thick, smooth both sides
Carbon steel plate	ASTM A283
Welded headed studs	AWS D1.1 – Type B
Bolts, nuts, rods, washers	Standard spec 506.2
Neoprene Filler	Closed cell 100% virgin chloroprene (neoprene) filler meeting Section 14 of AASHTO LRFD
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

B.3.6 Footing and Coping
Furnish and place footings and coping as shown on the plans and as hereinafter provided.

Use a footing that consists of poured concrete, Grade A, A-FA, A-S, A-T, A-IS, A-IP, or A-IT 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 II Concrete.

For cast in place sections of cap and coping, use poured concrete Grade A, A-FA, A-S, A-T, A-IS, A-IP, or A-IT 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 high-strength bar steel conforming to standard spec 505.

B.4 Plant Certification
Obtain all precast prestressed concrete wall panels from fabrication plants that comply with the department's plant certification program for precast prestressed concrete, unless the engineer agrees to accept these items according to the alternate procedures set forth in the department's plant certification program.

C Construction
C.1 Excavation and Backfill
Excavation will encompass the preparation of the foundation below the wall panel footing and to the limits and extents as shown on the plans, conforming 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 of the wall.

C.2 Stressing Procedure
Stressing procedure shall conform 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.3 Placing and Fastening Steel
Placing and fastening steel shall conform 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.4 Placing Concrete
Handle and place the concrete as specified in standard spec 502.

C.5 Tolerances
Cast Prestressed Precast Concrete Wall Panels to plan dimensions within the following applicable tolerances:

Item	Tolerance
Overall height of panel measured at the face exposed to view	± 3/16-inch per 10 ft.
Overall width of panel measured at the face exposed to view	± 3/16-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 Otherwise	 ± 1/4-inch ± 1/2-inch
Location of strand: Perpendicular to panel Parallel to panel	 ± 1/4-inch ± 1-inch
Dimensions of architectural features and rustications	± 1/4-inch

C.6 Curing
Cure concrete per standard spec 503.3.2.2.

C.7 Surface Finish
Provide surface treatment as detailed in the plans. Provide a rubbed surface finish on the remaining 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 panel. 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.8 Erection
Erect panels without damage to shape or finish. Replace or repair damaged panels. Do not drill or form holes through the precast prestressed wall facing panels to erect panels. An alternate method of anchoring/attaching the precast prestressed concrete wall panels may be submitted to the engineer for review and possible acceptance.

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. Place a layer of Geotextile Type DF over the joint between the tilt up panel and the panel footing as shown on the plans. 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 assemblies at MSE walls, as shown on the plans.

Touch-up scratched or damaged galvanized surfaces with 2 coats of zinc dust/zinc oxide paint. Clean and deburr the damaged and adjacent areas thoroughly before applying paint.

The cavity between the MSE wall and the panels shall remain free of backfill and debris throughout construction unless plans indicate otherwise or approved by the department's Bureau of Structures.

C.8.1 Erection Tolerances

Item	Tolerance
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 Maximum high	 1/2-inch 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.9 Adjusting
Adjust panels so joint dimensions are within tolerances.

D Measurement
The department will measure Prestressed Precast Concrete Wall Panel by the square foot acceptably completed. The department will compute the measured quantity from the theoretical pay limits the contract plans show. The department will make no allowance for wall area constructed above or below

the theoretical pay limits. All work beyond the theoretical pay limits is incidental to the cost of work. The department will make no allowance for as-built quantities.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0165.4010	Prestressed Precast Concrete Wall Panel R-40-567	SF

Payment is full compensation for preparing the design drawings and calculations, production drawings, and coordination; for providing concrete and reinforcement steel for the cast-in-place concrete footings and copings, decorative surface finish, sample panels, prestressed precast concrete wall panels, including all concrete, grout, mortar, reinforcement steel, tie bars, bearing pads, geotextile Type DF, excavation, shims, masonry anchors, filler, anchor plates, angles, slotted inserts and other embedded metal; for casting and curing concrete; for jacking and prestressing; and for furnishing all handling, hauling and erecting. Deadman, anchor blocks, rods, couplers and clevises shall be produced and supplied to the job site under this item.

The department will pay separately for parapets, traffic barriers, railings, and other items above the wall cap or coping.

SPV.0165.4010 (20181207)

324. Geocomposite Drain Board, Item SPV.0165.4015.

A Description

This special provision describes supplying and installing prefabricated geocomposite drain board as indicated on the plans. Perform work according 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 according 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.0165.4015	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.

325. Concrete Staining Previously Constructed Structure, Item SPV.0165.4020.

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 Thoroseal Pearl Gray by Thoro Products

The mortar shall contain one of the following acrylic bonding admixtures mixed and applied according 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 according 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 according 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 according 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.0165.4020	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.

326. Temporary Shoring Railroad Type A, Item SPV.0165.4028; Temporary Shoring Railroad Type B, Item SPV.0165.4048.

A Description

This special provision describes furnishing and installing temporary shoring at locations alongside railroad tracks and supporting railroad loading 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 (UPRR) and The Burlington Northern and Santa Fe Railway (BNSF), and refer to the UPRR General Shoring Zones diagram inserted at the end of this special provision. A copy of these guidelines may be obtained from the department at the Bureau of Railroads and Harbors, 4802 Sheboygan Avenue, Madison, Room 701 or at http://www.up.com/customers/ind-dev/operations/specs/. Where conflicts exist, the standard specifications, special provisions and plans shall supersede 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.

B.2 Shoring Design for Temporary Abutment Wall and Temporary Wingwall Faces

A design that has been approved by the UPRR during the design phase is included in the contract documents for temporary shoring systems that function as temporary wingwalls and abutment walls for the temporary railroad bridge. Submit this design, or an altered design if desired, to the UPRR that conforms to subsection B.1 of this special provision. If submitting this design included in the contract documents, conform to all applicable standard specifications and to the following articles elsewhere in these special provisions:

- Foundation Drilling 36-Inch Diameter UPRR
- Concrete Masonry Soldier Pile Footings UPRR
- Timber Lagging UPRR
- Deadman Tiebacks UPRR

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:

Chris Keckeisen

Engineering Design – Public Projects

Union Pacific Railroad Company

1400 Douglas Street – Stop 0910

Omaha, NE 68179-0910

Telephone: (402) 544-5131

Email ctkeckei@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 items 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.0165.4028	Temporary Shoring Railroad Type A	SF
SPV.0165.4048	Temporary Shoring Railroad Type B	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.

All work required for temporary shoring systems that function as abutment wall and wingwall faces for the temporary railroad bridge shall be paid for under “Temporary Shoring Railroad Type A”. All other temporary shoring systems supporting UPRR track sections shall be paid for under “Temporary Shoring Railroad Type B”.

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.

327. Temporary Shoring Railroad Type CP, Item SPV.0165.4060.

A Description

This special provision describes furnishing and installing temporary shoring at locations alongside railroad tracks as shown on the plan and conforming 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 & Harbors. Where conflicts exist, the standard specifications, special provisions and plans shall supercede these guidelines.

Refer to standard spec 107.17(6) and (7) regarding the development and submittal of shop drawings, detailed plans, and computations for temporary construction near the BNSF’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

Canadian Pacific (CP) 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:

Brian Osborne
Manager Public Works – US East Region
O 612-330-4555 C 612-760-2945
Canadian Pacific Plaza 120 South 6th Street., Suite 700
Minneapolis, MN 55402

Provide, install and maintain adequate protection for people within the CP’s right-of-way. Cover, guard, and/or protect all excavations, holes, or trenches within the CP’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 conforming to standard spec 206.3.13.

D Measurement

The department will measure Temporary Shoring Railroad items 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.0165.4060	Temporary Shoring Railroad Type CP	SF

Payment for Temporary Shoring Railroad 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 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.

328. Precast Concrete Modular Retaining Wall, Item SPV.0165.4069; Precast Concrete Modular Wingwall, Item SPV.0165.4088.

A Description

A.1 General

This section describes the design, manufacture, and construction of a precast concrete modular retaining wall to the lines, grades, and dimensions shown in the contract plans, in accordance with this specification, and as directed by the engineer or the UPRR engineer.

The precast concrete modular retaining wall shall consist of precast concrete units, an unreinforced concrete leveling pad and excavation to install this leveling pad, drainage materials, and a reinforced concrete drainage swale at the top of the wall per the contract plans. The materials, fabrication, and construction shall comply with this special provision, and the requirements specified by the supplier of the wall system selected by the contractor for use on the project.

A.2 Conceptual Design Prequalification

The precast concrete units shall be composed of a precast concrete front face and a precast concrete stem embedded into the retained fill. The maximum required stem length calculated by the manufacturer in a particular cross section shall be located on the bottom horizontal course of this wall; the stem lengths may be reduced, per manufacturer’s design, in successive horizontal courses stacked on top of the bottom course. Mechanically Stabilized Earth (MSE) walls are not allowed. Precast Modular Block Walls are not allowed.

The following wall type and design supplier is prequalified to design and fabricate precast concrete modular retaining walls for this project:

T-WALL® Retaining Wall System

The Neel Company (TNC)

8328-D Traford Lane

Springfield, Virginia 22152

(703-913-7858)

Contact: John Dallain

A.3 Design

Design shall be in accordance to the following criteria (listed in order of governance):

AREMA Manual for Railway Engineering, 2015 Edition

WisDOT Bridge Manual, 2015 Edition

AASHTO LRFD Bridge Design Specifications, 7th Edition.

The design life of the precast concrete modular retaining wall and all wall components shall be 75 years.

A.4 Loads

Use a Cooper E80 live load surcharge as calculated per AREMA Section 8-2.2.3c.

Use a live load surcharge as calculated per AREMA Section 8-20.3.2.2.

A.5 Foundation Analysis

A geotechnical investigation is part of the Geotechnical Exploration and Foundation Evaluation Report. The contractor is strongly advised to obtain and consult the Geotechnical Exploration and Foundation Evaluation Reports for the applicable retaining wall structures. The contractor shall be responsible to have a qualified geotechnical engineer on site to verify that the foundation has been prepared properly and that the foundation can support the loads.

A.6 Stability Analysis

Minimum factors of safety are:

Sliding: 1.5

Overturning: 2.0

Bearing Capacity: 3.0

Global Stability: 1.5

Pullout: 1.5

B Materials

B.1 General

Furnish the following materials conforming to the following criteria:

AREMA Manual for Railway Engineering, 2015 Edition.

Precast Concrete ..... Section 8-1.2

..... Section 8-1.3

..... Section 8-1.4

..... Section 8-1.5

..... Section 8-1.7

Adhesive Anchors ..... Section 8-1.23

Coated High Strength Bar Steel Reinforcement ..... Section 8-1.6

Welded Steel Wire Fabric for Concrete Reinforcement ..... Section 8-1.6

Structural Steel and Miscellaneous Metals ..... Section 15-1.2.1

Elastomeric Bearing Pads ..... Section 15-5.6

Provide the above materials with supplemental criteria conforming to the following WisDOT specifications (in cases where the following conflicts with the 2015 AREMA sections listed above, the 2015 AREMA sections govern):

Precast Concrete ..... section 501

Adhesive Anchors ..... section 502

Coated High Strength Bar Steel Reinforcement ..... section 505

Welded Steel Wire Fabric for Concrete Reinforcement ..... section 505

Structural Steel and Miscellaneous Metals ..... section 506

Elastomeric Bearing Pads ..... section 506

Geotextile Fabric ..... section 645

The units shall be manufactured in an NPCA, PCI or WisDOT certified precast concrete plant.

B.2 Concrete

Furnish concrete as specified in AREMA Section 8-1. Submit all concrete mixes to the engineer and the UPRR engineer for approval before fabricating modular wall units.

Self-consolidating concrete (SCC) is permitted, based on satisfactory test results approved by the engineer and the UPRR engineer. Cast a test panel when a WisDOT-approved inspector is present. Base the self-consolidating concrete properties on the test panel.

Ensure concrete attains a minimum 28-day compressive strength of 5,000 pounds per square inch. Base all tests on 6-inch by 12-inch cylinders, or 4-inch by 8-inch cylinders, provided the engineer or the UPRR engineer develops and approves a correlation factor. Mold concrete cylinders in suitable steel or plastic molds. Cure concrete cylinders according to ASTM C31, except cure the cylinders with the member until release strength is obtained, then cure the cylinders according to ASTM C31.

The contractor shall make and test the cylinders and make available to the engineer and the UPRR engineer all information relating to the making and testing of cylinders. Notify the engineer and the UPRR 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 and the UPRR engineer. Provide copies of the tests to the engineer and the UPRR engineer by contract completion.

Furnish precast concrete units cast from air entrained concrete. Use type I, IS, I(SM), IP, II, or III cement. The contractor may use fly ash as permitted by AREMA Section 8-1.3.Use only one source and replacement rate for work under a single bid item. Use an AREMA approved air entraining admixture conforming to AREMA Section 8-1.7 for air entrained concrete. Use only size No. 1 coarse aggregate conforming to AREMA Section 8-1.4.

The contractor shall determine proportions for the mix within the following limitations:

Water cement ratio	not greater than 0.45
Cement content, pounds per cubic yard of concrete	610-705
Air content of concrete, percent maximum	3.5-6.0
Slump of mixed concrete, maximum	4 inches

If the mix does not contain a high range water reducer admixture, use an AREMA approved set retarding admixture as specified in Section 8-1.7 at the recommended rate if the ambient air temperature is 70 degrees F (21 degrees C) or higher.

The contractor shall not add more admixtures or water after mixing is complete.

Use admixtures that do not have significant chlorides or chlorides added during manufacture.

Use admixtures that are compatible with all ingredients of the concrete mixture.

The leveling pad and drainage swale concrete shall have a minimum 28-day compressive strength of 3,500 pounds per square inch. Under normal circumstances, the leveling pad strength is considered acceptable for placement of the precast concrete wall units after 24 hours of cure. No reinforcement is required in the cast-in-place leveling pad; cast reinforcement per subsection B.3 in the drainage swale as the plans show.

B.3 Reinforcement

Use high tensile strength bar steel reinforcement conforming to AREMA Section 8-1.6, grade 60.

The minimum concrete cover shall be in accordance with the reference specifications:

Primary reinforcement……2”

Stirrups, ties……1 ½”

Reinforcement cage fabrication by welding shall not be permitted.

B.4 Plant Certification

Obtain all precast concrete wall units from fabrication plants that comply with the department’s plant certification program, unless the engineer, and the UPRR engineer if applicable, 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 precast units is determined by the fabricator and approved by the engineer, and the UPRR engineer if applicable. Do not locate lifting devices in the surface of the precast units facing opposite the railroad.

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: AREMA Section 15-1.2

Joint Material: Closed cell 100% virgin chloroprene (neoprene) rubber spacer pads with a minimum 60 durometer hardness per 2015 AREMA Chapter 8.18.2

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.

Geotextile Fabric, Type DF Schedule B: as per subsection 645.2.4 of the standard specifications, except that the grab tensile strength shall be a minimum of 180 pounds in both the machine and cross-machine directions.

Zinc coated fabrications: Conform to ASTM A123 for fabricating zinc coated work.

C Construction

C.1 Design Requirements

Design the precast units and components to withstand initial handling, transportation, and erection stress limits; dead loads; live loads; live load surcharge; and other loads specified in conformance with 2015 AREMA Manual Group Loading Combinations.

Provide minimum temperature and shrinkage reinforcement as required by the 2015 AREMA Manual Section 8-2.12.

The precast concrete modular wall designer shall provide technical assistance at the start of the modular wall installation to observe that the contractor is following the proper installation procedure in accordance with the manufacturer’s recommendations.

At each unit foundation level, two leveling pads shall be provided as shown on the approved design drawings. Leveling pads shall be level and flat within ± ¼ inch per 15 feet. Leveling pads that do not meet this requirement shall be repaired or replaced as directed by the engineer, or the UPRR engineer if applicable, at no additional cost to the department.

C.2 Submittals

Design 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 leveling pad; 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.

Design 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; 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 and experienced in the design of precast concrete modular retaining walls.

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 and the UPRR engineer, for placing on file before commencing fabrication, 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 and the UPRR engineer may make. The engineer or the UPRR engineer may refuse prints of submittals that are not clear and legible. If the engineer or the UPRR 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 and the UPRR engineer approve 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 and the UPRR engineer’s further review.

The engineer's and the UPRR 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 Placing and Fastening Steel

Placing and fastening steel shall be in accordance to AREMA Section 8-1.10. Place all steel units in the position the plans show and hold firmly during concrete placing and setting as specified in AREMA Section 8-1.10.

Ensure that all reinforcing 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.4 Placing Concrete

Handle and place the concrete as specified in AREMA Section 8-1.14.

C.5 Tolerances

Cast precast concrete units to plan dimensions within the following applicable tolerances:

Overall height of units measured at the face exposed to view..... ±3/4-inch per 10 ft.

Overall width of units measured at the face exposed to view ..... ±3/4-inch per 15 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) ..... ± 1/4-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

Dimensions of architectural features and rustications ..... .±1/4-inch

C.6 Curing

Cure concrete in accordance to AREMA Seciton 8-1.18.

C.7 Surface Finish

Provide a smooth steel form finish on the exposed surfaces of precast concrete units as specified in AREMA Section 8-1.19 before shipping from the plant. Use rigid molds to maintain units within specified tolerances conforming to the shape, lines, and dimensions shown on the production drawings. Construct molds to withstand vibration method selected.

The engineer, or the UPRR engineer if applicable, will inspect for approval the concrete surface of all precast concrete units to check for honeycombs and other surface irregularities, upon delivery.

C.8 Erection

Erect precast concrete units without damage to shape or finish. Replace or repair damaged units. Install an 18” wide geotextile fabric on the backface of the wall panels to cover all panel joints. Attach the geotextile fabric 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.

Place precast concrete units so that their final position is vertical. Ensure that the horizontal and vertical joint openings between each unit are uniform and that decorative patterns between each unit are aligned.

When precast concrete units require adjustment beyond design or tolerance criteria, discontinue affected work; advise the engineer and the UPRR engineer.

Verify structure, leveling pad, anchors blocks, rods, couplers, clevises, and other anchor devices are ready to receive precast concrete units. Verify that the leveling pad is placed at the proper horizontal and vertical alignments and is ready to receive the precast concrete units.

Touch-up scratched or damaged galvanized surfaces.

C.9 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 ..... ± 3/4-inch

Support elevation from nominal elevation:

Maximum low 1/2-inch

Maximum high 1/4-inch

Plumb in any 10 ft. of lagging 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.10 Adjusting

Adjust precast concrete units so joint dimensions are within tolerances.

D Measurement

The department will measure Precast Concrete Modular Wall items in area by the square foot acceptably completed, measured as the vertical area within the pay limits the contract plans show. 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 measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0165.4069	Precast Concrete Modular Retaining Wall	SF
SPV.0165.4088	Precast Concrete Modular Wingwall	SF

Payment is full compensation for preparing the design drawings and calculations, production drawings, and coordination; for providing precast concrete modular wall units, including all concrete, grout, mortar, reinforcement steel, tie bars, bearing pads, shims, geotextile fabric, adhesive anchors, filler, anchor plates, angles, slotted inserts and other embedded metal; for casting and curing concrete; and for all handling, hauling and erecting. Excavation and construction of leveling pad and drainage swale shall be incidental to the Precast Concrete Modular Retaining Wall bid item.

Excavation, over-excavation to prepare subgrade, and backfill above, between the stems and under the wall will be paid for separately. Railings and other hardware above the top of the retaining wall will be paid for separately..

329. Geocomposite Wall Drain, Item SPV.0165.4090.

A Description

This special provision describes supplying and installing prefabricated geocomposite wall drain as indicated on the plans. Perform work according 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 according to manufacturer's recommendations. Place and secure geocomposite in strips covering secant wall pile seams after weep hole installation as indicated on the plans, with the fabric facing outward towards the seams. Make seams and overlaps as required according to the manufacturer's recommendations and specifications.

D Measurement

The department will measure Geocomposite Wall Drain 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.0165.4090	Geocomposite Wall Drain	SF

Payment is full compensation for furnishing, installing, and trimming all materials; and for furnishing all labor, tools, equipment, fasteners, and incidentals necessary to complete the contract work.

330. Wall Concrete Panel Mechanically Stabilized Earth R-40-561, Item SPV.0165.4100; Wall Concrete Panel Mechanically Stabilized Earth R-40-564, Item SPV.0165.4101; Wall Concrete Panel Mechanically Stabilized Earth R-40-568, Item SPV.0165.4102; Wall Concrete Panel Mechanically Stabilized Earth R-40-569, Item SPV.0165.4103; Wall Concrete Panel Mechanically Stabilized Earth R-40-570, Item SPV.0165.4104; Wall Concrete Panel Mechanically Stabilized Earth R-40-572, Item SPV.0165.4105; Wall Concrete Panel Mechanically Stabilized Earth R-40-632, Item SPV.0165.4106; Wall Concrete Panel Mechanically Stabilized Earth R-40-635, Item SPV.0165.4107.

A Description

This special provision describes designing, furnishing materials and erecting a permanent earth retention system according 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 Mechanically Stabilized Earth (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.

B Materials

B.1 Proprietary Wall Systems

The supplied wall system must be from the department's approved list of Concrete Panel Mechanically Stabilized Earth Wall systems. Proprietary wall systems must conform to the requirements of this specification and be pre-approved for use by the department's Bureau of Structures. The department maintains a list of pre-approved proprietary 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 be eligible for use on this project, a system must have been pre-approved by the Bureau of Structures and added to that list prior to the bid opening date. To receive pre-approval, the retaining wall system must comply with all pertinent requirements of this provision and be prepared according 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 Bureau of Structures, Structures Maintenance Section at the following email address: DOTDLStructuresFabrication@dot.wi.gov.

B.2 Design Requirements

It is the responsibility of the contractor to submit a design and supporting documentation as required by this special provision, for review and acceptance by the department, to show the proposed wall design is in compliance with the design specifications. The submittal shall include the following items for review: detailed plans and shop drawings, complete design calculations, explanatory notes, supporting materials, and specifications. The detailed plans and shop drawings shall include all details, dimensions, quantities and cross-sections necessary to construct the walls. Submit shop drawings to the engineer conforming to 105.2 with electronic submittal to the fabrication library under 105.2.2. Certify that shop drawings conform to quality control standards by submitting department form DT2329 with each set of shop drawings. Department review does not relieve the contractor from responsibility for errors or omissions on shop drawings. Submit no later than 60 days from the date of notification to proceed with the project and a minimum of 30 days prior to the date proposed to begin wall construction.

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 WisDOT 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 wall shall be in compliance with the current American Association of State Highway and Transportation Officials LRFD (AASHTO LRFD) Bridge Design Specifications with latest interim specifications for Mechanically Stabilized Earth Walls, WisDOT's current Standard Specifications for Highway and Structure Construction (standard spec), 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 according to Table 11.5.7-1 in AASHTO LRFD.

Design and construct the walls according 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 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 according 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.

The design of the wall by the contractor shall consider the internal and compound stability of the wall mass according 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. Sample analyses and hand calculations shall be submitted to verify the output of any software program used. The design calculations

and notes shall clearly indicate the Capacity to Demand Ratios (CDR) for all internal and external stabilities as defined in AASHTO LRFD.

The wall facing shall be designed according to 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 of 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. All soil reinforcement layers shall be connected to facings. 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 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 according 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. Unless approved by the Bureau of Structures cutting or altering of the basic structural section of either the strip or grid at the site is prohibited, a minimum clearance of 3” shall be maintained between any obstruction and reinforcement, and splicing reinforcement is not allowed.

The minimum embedment of the wall shall be 1 foot 6 inches below finished grade, or as given on the plans. All walls shall be provided with a concrete leveling pad. Minimum wall embedment does not include the leveling pad depth. Step the leveling pad to follow the general slope of the ground line. Frost depth shall not be considered in designing the wall for depth of leveling pad.

Wall facing units shall be installed on a leveling pad.

B.3 Wall System Components

Materials furnished for wall system components under this contract shall conform to the requirements of this specification. All documentation related to material and components of the wall systems specified in this subsection shall be submitted to the engineer.

B.3.1 Wall Facing

Wall facing shall consist of modular precast concrete face panels produced by a wet cast process. 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. Panels shall be reinforced using coated high-strength bar steel or welded steel wire fabric conforming to standard spec 505. Welded steel wire fabric shall be epoxy-coated according to ASTM A884 or galvanized according to AASHTO M 111 or ASTM A641. Panel dowels for cast-in-place copings shall be coated high-strength bar steel conforming to standard spec 505. Unless approved by the Bureau of Structures, adhesive anchors are prohibited.

For reinforced cast-in-place concrete cap or coping, use poured concrete Grade A, A-FA, A-S, A-T, A-IS, A-IP or A-IT 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 coated high-strength bar steel conforming to standard spec 505.

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 D2000, 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 according to ASTM D1505.

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, 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.

B.3.2 Leveling Pad

Provide an unreinforced cast-in-place concrete leveling pad. Use Grade A, A-FA, A-S, A-T, A-IS, A-IP, or A-IT 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 width of the leveling pad shall be 12-inches. The minimum thickness of the leveling pad shall be 6-inches.

B.3.3 Backfill

Furnish and place backfill for the wall as shown on the plans and as hereinafter provided.

Place backfill in a zone extending horizontally from the back face of the wall facing to 1 foot minimum beyond the end of the reinforcement and extending vertically from the top of the leveling pad to a minimum of 3 inches above the final reinforcement layer.

Use natural sand or a mixture of sand with gravel, crushed gravel or crushed stone. Do not use foundry sand, bottom ash, blast furnace slag, crushed/recycled concrete, crushed/milled asphaltic concrete or other potentially corrosive material.

Provide material conforming 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	
		(Galvanized)	(Aluminized Type 2)
pH	AASHTO T-289	5.0-10.0	5.0 – 9.0
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.	1500 ohm-cm min.
Organic Content	AASHTO T-267	1.0% max.	

Angle of Internal Friction	AASHTO T-236[1]	30 degrees min. (At 95.0% of maximum density and optimum moisture, per AASHTO T99, or as modified by C.2.)

[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 D5821, 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 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. For the additional required testing for every 2000 cubic yards of backfill placement, if the characteristic of the backfill and/or the source has not changed then Angle of Internal Friction tests are not included in the additional required testing. All certified reports of test results shall be less than 6 months old and performed by a certified independent laboratory.

B.3.4 Soil Reinforcement
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. Soil reinforcement shall be galvanized or aluminized Type 2. Galvanized soil reinforcement shall be according to AASHTO M 111 or ASTM A641. Aluminized soil reinforcement shall be according to ASTM A463 Aluminized Type 2-100, SS, Grade 50, Class 2. Design of galvanized soil reinforcement shall be according to Section 11.10.6.4.2 of the current AASHTO LRFD Specifications. The design life of steel soil reinforcements shall comply with AASHTO LRFD. Aluminized soil reinforcement shall be limited 16 years of steel protection. Aluminized steel shall only be used on soil reinforcement elements and shall not be used on facing connections or any other steel portion of the wall system. Steel soil reinforcement shall be prefabricated into single or multiple elements before galvanizing.

C Construction
C.1 Excavation and Backfill
Excavation and preparation of the foundation for the MSE wall and the leveling pad shall be according 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.

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, after compaction.

Conduct backfilling operations in such a manner as to prevent damage or misalignment of the wall panels, 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. Place and compact material beyond the

reinforced soil zone to allow for proper compaction of material within the reinforced zone. 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 panels. The engineer may order the removal of any large or heavy equipment that may cause damage or misalignment of the panels.

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).

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. Do not use sheepsfoot or padfoot rollers within the reinforced soil zone.

A minimum of 3 inches of backfill shall be placed over the MSE reinforcement prior to working above the reinforcement.

C.3 Wall Components
C.3.1 General
Erect panel 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.

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.3.2 Leveling Pad
Provide an unreinforced cast-in-place concrete leveling pad as shown on the plans. Vertical tolerances shall not exceed 3/4-inch when measured along a 10-foot straight edge. Allow concrete to set at least 12 hours prior to placing wall facing units.

The bottom row of wall facing units shall be horizontal and 100% of the unit surface shall bear on the leveling pad. Rubber or plastic shims may be used to level the wall facing units at the leveling pad. No more than 2 shims (each 3/16-inch thick) shall be used to level the wall facing.

C.3.3 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.

C3.4 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.
8. A proposed sequencing plan of wall construction operations and random test locations.

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 Grading Technician I (GRADINGTEC-I); or Assistant Certified Technician, Grading (ACT-GRADING); or Aggregate Technician I (AGGTEC-I); or Assistant Certified Technician, Aggregate (ACT-AGG) present at the each grading site during all wall backfill placement, compaction, and nuclear testing activities. Have a HTCP Nuclear Density Technician I (NUCDENSITYTEC-I) or Assistant Certified Technician, Nuclear Density Gauge Operator (ACT-NUC) 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:
https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/default.aspx

Ensure that the nuclear 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 AASHTO T310 and CMM 8-15 for density testing and gauge monitoring methods.

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 Documentation

(1) Document all observations, inspection records, and process adjustments daily. Submit test results to the department's project materials coordinator on the same day they become available.

(2) Use forms provided in CMM Chapter 8. Note other information in a permanent field record and as a part of process control documentation enumerated in the contractor's quality control plan. Enter QC data and backfill material certified report results into the applicable materials reporting system (MRS) software within 5 business days after results are available.

(3) Submit final testing records and other documentation to the engineer electronically within 10 business days after all contract-required information becomes available. The engineer may allow submission of scanned copies of hand-written documentation.

C.4.5 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 in each lift. 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 2,250 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.4.6 Department Testing

C.4.6.1 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.4.6.2 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.

C.4.6.3 Independent Assurance (IA)

(1) Independent 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.4.6.4.

C.4.6.4 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 Soils Engineer two working days to review the foundation.

D Measurement

The department will measure Wall Concrete Panel Mechanically Stabilized Earth by the square foot acceptably completed. The department will compute the measured quantity from the theoretical pay limits the contract plans show. The department will make no allowance for wall area constructed above or below the theoretical pay limits. All work beyond the theoretical pay limits is incidental to the cost of work. The department will make no allowance for as-built quantities.

E Payment

The department will pay for accepted measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0165.4100	Wall Concrete Panel Mechanically Stabilized Earth R-40-561	SF
SPV.0165.4101	Wall Concrete Panel Mechanically Stabilized Earth R-40-564	SF
SPV.0165.4102	Wall Concrete Panel Mechanically Stabilized Earth R-40-568	SF
SPV.0165.4103	Wall Concrete Panel Mechanically Stabilized Earth R-40-569	SF
SPV.0165.4104	Wall Concrete Panel Mechanically Stabilized Earth R-40-570	SF
SPV.0165.4105	Wall Concrete Panel Mechanically Stabilized Earth R-40-572	SF
SPV.0165.4106	Wall Concrete Panel Mechanically Stabilized Earth R-40-632	SF
SPV.0165.4107	Wall Concrete Panel Mechanically Stabilized Earth R-40-635	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 wall system including cap, copings, leveling pads, leveling pad steps, and shims; constructing the retaining system and providing temporary drainage; providing backfill, backfilling, compacting, developing/completing/documenting the quality management program, and performing compaction testing.

The department will pay separately for parapets, traffic barriers, railings, and other items above the wall cap or coping.

SPV.0165.4001 (20190917)

331. Concrete Pavement 12-Inch Special, Item SPV.0180.0101; Concrete Pavement HES 12-Inch Special, Item SPV.0180.0102.

A. Description

This special provision describes specialized material and construction requirements to use on mainline concrete pavement and shoulders.

Conform to standard specs 415 and 501 as modified in this special provision and according to the QMP Concrete Pavement Special Requirements.

B Materials

B.1 Reinforcement

Replace standard spec 415.2.2 with the following:

(1) Furnish tie bars as the plans show and according to standard spec 505.2.6.

(2) Furnish HP dowel bars for transverse joints in mainline concrete pavement from the WisDOT Approved Products List (APL) located at:

https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/default.aspx

(3) Furnish only one type of high performance (HP) bar for all concrete pavement under the contract.

B.2 Coarse Aggregates

B.2.1 General

Replace standard spec 501.2.5.4.1 (2) with the following:

Use clean, hard, durable crushed limestone with 100 percent 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.3 Deleterious Substances

Replace standard spec 501.2.5.4.2(1) with the following:

The quantity 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.4 Physical Properties

Replace standard specs 501.2.5.4.3 (1) and (2) with the following:

(1) The percent wear shall not exceed 30 percent.

(2) 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.5 Joint Filler

Replace standard specs 415.2.6 with the following:

(1) Furnish a silane sealer from the department's approved product list for Concrete Protective Surface Treatments.

C Construction

C.1 Jointing

Supplement standard spec415.3.7.1 with the following:

(7) Remove all saw slurry from sawed joints and allow to dry thoroughly before application of silane joint sealer.

(8) Apply silane joint sealer to all sawed surfaces of the transverse and longitudinal joints unless directed otherwise by the engineer. Apply the silane joint sealer directly to the interior of the sawed joint. Do not use a broadcast spray method of application.

(9) Apply silane joint sealer per manufacturers specifications

(10) Apply silane joint sealer within one month of concrete placement.

C.2 Surface Finishing

Replace standard spec 415.3.8.3.1 with the following:

(1) Tine freshly placed pavement as soon as it is practical after floating.

(2) 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..

(3) Construct a finished surface free of tining defects. Complete before tining tears or unduly roughens the concrete

(4) Tine surface longitudinally as specified in standard spec 415.3.8.3.2.

C.3 Curing Concrete

Replace standard spec 415.3.12.1 with the following:

(1) 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.

(2) If the concrete is not cured as specified in the subsection, the engineer may suspend concrete placement operations.

C.4 Extended Delivery Time

Delete standard spec 501.3.2.4.3.3.

C.5 Ready-Mixed Concrete

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 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

The contractor is responsible for the quality of the concrete pavement placed in hot weather.

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 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.

D (Vacant)

E Payment

Conform to standard spec 415.5 and as modified in this special provision.

Replace standard spec 415.5.1(1) with the following:

(1) The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0180.0101	Concrete Pavement 12-Inch Special	SY
SPV.0180.0102	Concrete Pavement HES 12-Inch Special	SY

Replace standard spec 415.5.1(2) with the following:

(2) Payment for the Concrete Pavement bid items is full compensation for providing pavement; for preparing the foundation, unless provided otherwise; for placing thickness plates; and for thickness coring and filling core holes as required under 415.3.16.4. Payment also includes providing tie bars and dowel bars within concrete placed under the contract. The department will pay separately for tie bars and dowel bars used to connect the work to concrete not placed under the contract under the Drilled Tie Bars and Drilled Dowel Bars bid items as specified in 416.5. The department will not pay for removal and replacement of pavement not meeting the surface smoothness tolerances specified in 415.3.10.

Payment also includes sealing joints with silane sealer, sawing of concrete pavement, and any additive or action taken to control the temperature of concrete.

332. Concrete Pavement 10-Inch Special, Item SPV.0180.0103.

A. Description

This special provision describes specialized material and construction requirements to use on concrete freeway exit and entrance ramps.

Conform to standard specs 415 and 501 as modified in this special provision and according to the QMP Concrete Pavement Special Requirements.

B Materials

B.1 Coarse Aggregates

B.1.1 General

Replace standard spec 501.2.5.4.1 (2) with the following:

Use clean, hard, durable crushed limestone with 100 percent 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.

Use an optimized aggregate graduation according to the contract special provisions.

B.2 Deleterious Substances

Replace standard spec 501.2.5.4.2(1) with the following:

The quantity 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.3 Physical Properties

Replace standard spec 501.2.5.4.3 (1) and (2) with the following:

(1) The percent wear shall not exceed 30 percent.

(2) 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.

C Construction

C.1 Surface Finishing

Replace standard spec 415.3.8.3.1 with the following:

(1) Tine freshly placed pavement as soon as it is practical after floating.

(2) 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.

(3) Construct a finished surface free of tining defects. Complete before tining tears or unduly roughens the concrete

(4) Tine surface longitudinally as specified in standard spec 415.3.8.3.2.

C.2 Curing Concrete

Replace standard spec 415.3.12.1 with the following:

(1) 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 truck.

(2) If the concrete is not cured as specified in the subsection, the engineer may suspend concrete placement operations.

C.3 Extended Delivery Time

Delete standard spec 501.3.2.4.3.3.

C.4 Ready-Mixed Concrete

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 mixed in a stationary mixer and transported to the point of delivery with or without mechanical agitation in the transporting vehicle.

C.5 Hot Weather Concreting

The contractor is responsible for the quality of the concrete pavement placed in hot weather.

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 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.

D (Vacant)

E Payment

Conform to standard spec 415.5 and as modified in this special provision.

Replace standard spec 415.5.1(1) with the following:

(1) The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0180.0103	Concrete Pavement 10-Inch Special	SY

Replace standard spec 415.5.1(2) with the following:

(2) Payment for the Concrete Pavement bid items is full compensation for providing pavement; for preparing the foundation, unless provided otherwise; for placing thickness plates; and for thickness coring and filling core holes as required under 415.3.16.4. Payment also includes providing tie bars and dowel bars within concrete placed under the contract. The department will pay separately for tie bars and dowel bars used to connect the work to concrete not placed under the contract under the Drilled Tie Bars and Drilled Dowel Bars bid items as specified in 416.5. The department will not pay for removal and replacement of pavement not meeting the surface smoothness tolerances specified in 415.3.10.

Payment also includes sawing of concrete pavement, joint sealer, and any additive or action taken to control the temperature of concrete.

333. Resin Binder High Friction Surface Treatment, Item SPV.0180.0105.

A Description

This special provision describes providing a high friction surface treatment (HFST) composed of aggregate in a resin binder on HMA or concrete pavements as the plans show and as follows.

B Materials

B.1 Resin Binder

Supply a two-part thermosetting resin binder which is compatible with the pavement type, bonds to the pavement surface, holds the aggregate firmly in place in a broad range of climates including below-freezing temperatures, and meets the requirements specified in Table 1. Supply a primer if recommended by the resin binder manufacturer.

Table 1. Resin Binder Properties

Property	Requirements	Test Method*
Viscosity	7 – 30 poises	ASTM D2556 1-pint specimen
Gel Time	10-minute minimum	ASTM C881 60g mass
Ultimate Tensile Strength	2,000 – 5,000 psi @ 7 days	ASTM D638 Type 1 specimen

Elongation at Break	30% - 70% @ 7 days	ASTM D638 Type 1 specimen
Compressive Strength		ASTM D695**
Water Absorption	-hr	ASTM D570 24-hr immersion
Shore D Hardness	60 – 80 @ 7 days	ASTM D2240*** Type 1 precision, Type D method
Cure Rate	(Dry Through Time)	ASTM D1640 50-55 wet mil thickness***
Adhesive Strength	250 psi @ 24 hours or 100% substrate failure	ASTM C1583***

* Prepare samples per manufacturer's recommendation; cure all specimens at 73 ± 2□ F and at 50 ± 2□ F; and test all specimens at 73 ± 2□ F.

** 2" x 2" cubes made of 2.75 parts of 20-30 mesh sand to 1 part mixed resin binder; use plastic inserts in oversized molds to produce 2" cubes.

*** Conduct testing on applicable pavement type.

B.2 Aggregate

Furnish calcined bauxite aggregate that is fractured or angular in shape; resistant to polishing and crushing; clean and free of surface moisture; free from silt, clay, asphalt, or other organic materials; compatible with the resin binder; and meet the properties and gradation requirements in Tables 2 and 3. Check with resin binder manufacturer for any compatibility requirements or concerns.

Table 2. Aggregate Properties

Property	Requirements	Test Methods
Moisture Content		AASHTO T 255
Fine Aggregate Angularity		AASHTO T 304, Method A
Micro-Deval		ASTM D7428
LA Wear	@ 500 revolutions	AASHTO T 96
Freeze-Thaw Soundness	Procedure A, B, or C, respectively	AASHTO T 103

Table 3. Aggregate Gradation (AASHTO T27)

Sieve Size	% Passing by Weight
No. 4	100
No. 6	95
No. 16	0-5
No. 30	0-1

B.3 Approval of High Friction Surface Treatment

A minimum of 20 working days before applying HFST, submit product data sheets and specifications from the manufacturer, and a certified test report from an independent laboratory verifying that the resin binder and the calcined bauxite aggregate meet all the requirements specified in Tables 1, 2 and 3. Documents must be dated within three years.

If resin binder has not been previously used in Wisconsin, also submit a list of at least five reference projects where the resin binder has been used for similar applications and in locations that have similar climatic conditions as Wisconsin. Supply a description of the projects along with contact information of the facility owner.

If the engineer requests, provide samples of the resin binder and aggregate for department testing before applying HFST.

C Construction

C.1 General

The contractor will provide documentation showing HFST application experience from at least three previous projects completed for WisDOT or other agencies.

Conduct a meeting with the resin binder manufacturer representatives before applying HFST to establish procedures for maintaining optimum working conditions and coordination of the work. Submit recommended application procedures, including quality control practices, to the engineer for approval. Ensure that a resin binder manufacturer representative is on site to provide technical assistance and quality assurance during surface preparation and for application of HFST.

Ensure that the resin binder components maintain their original properties during storage and handling. Store all aggregate in a dry environment and protect from contaminants on the job site.

C.2 Pavement Surface Preparation

C.2.1. Pavement Surface Repair

Remove visibly unsound or disintegrated areas of the pavement surface as the plans show or the engineer directs. Clean and dry all cracks too large to be filled with surface treatment. Fill cracks with a mixture of resin binder and aggregate before applying the surface treatment. Follow manufacturer's recommendations for curing before applying the surface treatment.

Check with resin binder manufacturer to ensure that products used for pavement repairs or patches are compatible with the resin HFST. Ensure that any new concrete or repairs are fully cured before placing the HFST.

C.2.2 Surface Preparation

Cover and protect utilities, drainage structures, expansion joints on bridge decks, and other structures within or adjacent to the application location to prevent materials from adhering to or entering those structures.

Remove pavement markings that are within the treatment area. Cover existing pavement markings adjacent to the application if they are to remain in place.

After all pavement repairs or patches have completely cured, and no more than 24 hours before HFST application, prepare a concrete pavement surface by shot blasting to roughen the surface texture. Ensure the pavement surface has no grease, oil, curing compound, loosely bonded mortar, pavement marking, or other foreign matter resting on the pavement surface.

Completely remove any grease, oil, pavement marking, or other foreign matter resting on an HMA pavement surface that could prevent proper bonding of the resin binder by shot blasting. Shot blast entire HMA pavement surfaces that are less than 30 days old prior to cleaning and installing HFST.

Sufficiently clean HMA and concrete pavement surfaces by vacuum-sweeping and blowing, with oil-free compressed air, just before applying HFST. Compressors must be equipped with functioning oil/water separators. Cleaning must be done the same day that HFST will be applied. Ensure the surface is clean, completely dry, and free of all dust, oil, debris and other material that might interfere with the bond between the resin binder and the existing pavement surface.

If the engineer requires additional verification of adequate surface preparation of the pavement, test the bond strength according to ASTM C1583. The surface is acceptable if the tensile bond strength is greater than or equal to 250 psi, or failure is in the substrate. Repeat shot blasting, cleaning, and testing, if needed, until passing test results are obtained or the surface is acceptable to the engineer.

Keep vehicles and unnecessary equipment off the cleaned surface; only allow HFST application equipment on the clean surface. Apply HFST as soon as possible after pavement surface preparations are completed.

Abide by the established quality control practices and adhere to any additional manufacturer

recommendations for surface preparation. Request that the engineer inspect and approve the pavement surface immediately prior to placing the HFST.

C.3 Application of the HFST

Do not apply the HFST if any of the following exists:

- Pavement surface is wet, damp, or has received rainfall in the previous 24 hours.
- Pavement surface is not sufficiently clean.
- Ambient air or pavement surface temperature is below 50o F or below the manufacturer's recommendations
- If the anticipated weather conditions would prevent adequate curing of the HFST.
- Rain is predicted before HFST completion or proper cure is achieved.
- Pavement preparation is inadequate or didn't pass pull-off test.

Close treatment areas to traffic until HFST is completely cured and pavement surface has been vacuum-swept.

Construct HFST to the full width of the existing pavement surface, or as the plans show or engineer directs. Extend the HFST application 2'-3' into the shoulders if application site is on a curve, Apply as a single layer 1/8 inch to 1/4 inch thick.

Apply a primer to the pavement surface if recommended by the resin binder manufacturer, and according to their application recommendations. Abide by the established quality control practices and adhere to any additional manufacturer recommendations for HFST application.

Blend and mix the resin binder components at the manufacturer's specified ratio using equipment capable of providing the desired results.

Apply the resin binder uniformly over the pavement surface manually or with automated equipment at a uniform thickness of 50-65 mils (25-32 ft2/gal). Use enough resin to cover the pavement surface and sufficiently embed half the thickness of the aggregate; do not apply so much that it covers the aggregate and creates a slick surface. Adjust application rate, as needed, based on the pavement surface type, profile, and condition.

If using automated equipment, ensure that the equipment features positive displacement, volumetric metering, and is capable of storing, mixing, heating, monitoring, and distributing the binder components at the proper mix ratio. Adjust the pressure and the speed of the equipment to achieve the proper application thickness. If applying the binder by hand, use a serrated edged squeegee to spread the resin binder and provide uniform coverage at the proper thickness.

Do not contaminate the wet binder or allow the binder material to separate or cure, and impair bonding of the aggregate.

Immediately after applying the resin binder, distribute a sufficient quantity of dry calcined bauxite aggregate to completely cover the resin binder by hand broadcasting or by using a standard chip spreader or equivalent machine. Ensure aggregate is placed within five minutes of the resin binder placement, before it begins to cure. When broadcasting, sprinkle or drop the aggregate onto the resin binder vertically. Do not distribute aggregate in a way that will cause it to roll in the resin binder before coming to a rest; do not push the aggregate into position with a broom or any other hand tool. If using a chip spreader, the machine shall follow closely behind the crew or equipment applying the resin binder. Immediately cover any visible wet or bare spots, or areas with excessive binder, with additional calcined bauxite aggregate before the resin binder begins to set.

Allow the HFST to properly cure, adhering to manufacturer recommendations for minimum cure times at applicable temperatures.

After the HFST is fully cured, remove excess loose surface aggregate by sweeping, blowing, or vacuuming. Do not tear or otherwise damage the surface. Excess calcined bauxite aggregate that is recovered by a vacuum sweeper can be reused if clean, uncontaminated and dry. Remove and replace damaged areas or areas with excess or insufficient aggregate coverage. Clean expansion joints, utilities, and drainage structures of all debris before opening to traffic.

Additionally, within 3 to 7 days after opening to traffic, vacuum sweep the pavement surface to remove loosened aggregate from the high friction surface area, the shoulders, and any other areas within and immediately adjacent to the HFST site.

D Measurement

The department will measure Resin Binder High Friction Surface Treatment 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.0180.0105	Resin Binder High Friction Surface Treatment	SY

Payment for Resin Binder High Friction Surface Treatment is full compensation for testing materials; for preparing the pavement surface; filling all cracks; for providing the HFST; for cleanup; and for vacuum sweeping and disposing of excess material after the completion and again 3 to 7 days after completion.

The department will pay for concrete or HMA pavement repairs and traffic control separately under other contract bid items.

SER-400-001 (20170424)

334. Pesticide Application, Item SPV.0180.0110.

A Description

This special provision describes applying a pesticide application around the Hank Aaron State Trail (HAST) area of the project as shown in the plans and as approved by the engineer.\

B Materials

Furnish one of the following broadleaf specific pesticides or an approved equal:

1. Common Name: Triclopyr BEE
   Chemical Name: (3,5,6-trichloro-2-pyridinyl) oxyacetic acid, buoxyetheyl ester
   CAS #: 64700-56-7
   Composition: 61.6%
2. Common Name: Aromatic Hydrocarbons
   Chemical Name: solvent naphtha (petroleum), heavy aromatic
   CAS #: 64742-92-5
   Composition: 25.0%

C Construction

Apply the pesticide three times per year around the HAST area as shown in the plans and as approved by the engineer: one in late May, one in late July, and one in late September. The contractor shall be allowed a two-week range per application but must notify the HAST property manager of date range.

The HAST property manager shall be notified:

- Prior to each date of application with: applicator name, certification and license number, product information (detailed below).
- Prior to entry onto property with dates of application.
- After each application with product application total amounts.

A 14-day review period is required in advance of the pesticide application. Contact the following individual for review and approval:

Angela Vickio
HAST Property Manager
WI Department of Natural Resources (WDNR) Hank Aaron State Trail (HAST)
angela.vickio@wisconsin.gov
Office: (414) 274-4281
Cell: (414) 750-1237

The pesticide applicator shall be a certified and licensed applicator in the State of Wisconsin. This requires a DATCP Category 6.0 (Right of Way and Natural Areas) certification and license.

WDNR conducts two types of approvals for pesticide use on State Properties.

- General Use Approval
  - Spot spraying
  - Broadcast/continual spraying on less than 1/10th of an acre
  - Pesticide is NOT listed on the FSC list of highly hazardous pesticides (found at: https://fsc.org/en/document-centre/documents/resource/315)
  - Does not require review/approval *prior* to spraying
  - Application does need to be recorded by department staff in our WISFIRS system after complete
- Individual Approval
  - Broadcast spraying on more than 1/10th of an acre OR
  - Pesticide is listed as *highly restricted* OR *restricted* on the FSC list of highly hazardous pesticides
    - § CAS numbers for restricted pesticide groups are at the end of the document
    - § CAS numbers can be found on the pesticide SDS (but not always included on the label)
    - § Pesticides listed as *prohibited* are NOT allowed in any capacity
  - *Does* require entry and approval by department in our WISFIRS system prior to application
    - § Can be written for multiple spraying dates
    - § Depending on pesticide (if restricted) or total area covered may not get approved
- Information required to be provided to WDNR HAST property manager for ***each date of application***:
  - Applicator name and certification number
  - Product proposed to be applied
  - For spot spraying, percentage of solution used AND amount of solution used (in gallons)
    - § If broadcast spraying, amount per acre used
  - On HAST, the approximate GPS coordinates of start and end locations from trail
  - Target species: can be general for the rock slope locations (annual and perennial non-woody invasives)
  - To ensure all required information is provided, contact the property manager for the Pesticide Use Form-HAST.

Additional procedures/requirements for pesticide use on WDNR HAST property:

- All applicators shall follow label instructions and on WDNR property this includes:
  - Required PPE: long sleeves, long pants, pesticide boots, long nitrile gloves, pesticide vest or jacket if using backpack sprayer, safety glasses
  - Additional PPE determined by label or preference
  - Pesticide application signs to be posted at public facing boundaries for 48 hours spaced no more than 60’ apart; example of sign can be found at:
    - § https://gemplers.com/collections/all/products/universal-pesticide-application-signs
  - Forecasted wind speed less than 10mph
  - Forecasted temperature not lower t
- Any and all vehicle use on HAST must follow the following provisions:
  - Vehicles with rubber tires only on trail (no tracked vehicles)
  - Hazard lights on at all times
  - Yield to trail users
  - Stay to side of trail but do not drive off gravel shoulder
  - Vehicles not to exceed 15mph

Park and traverse ‘with traffic’ and pull to the side when possible to allow for safe passage for trail users

Use contractor marked vehicles and personnel must carry identification

- Coordinate with HAST property manager

  Notify of each anticipated application date and product beforehand:

  - § dates can range up to two weeks per application due to weather dependency
  - § to ensure CAS number is compliant with any updates to pesticide use requirements
  - § to ensure there are no conflicting work projects in spray area

  Ensure information listed above regarding application dates and total amount used are also provided following each application

Additional information regarding pesticide regulations within the State of Wisconsin can be found an State Statute ATCP 29 http://docs.legis.wisconsin.gov/code/admin_code/atcp/020/29.pdf

D Measurement

The department will measure Pesticide Application 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.0180.0110	Pesticide Application	SY

Payment is full compensation for furnishing and applying pesticide.

335. Topsoil Special, Item SPV.0180.0301.

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 quantities 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[1]	90%	100%
PH Range	6.0	8.0
Organic Matter[2]	5%	20%
Clay	5%	30%
Silt	10%	70%
Sand & Gravel	10%	70%

[1] See standard spec 625.3.3 for sieve requirements when using either sod or seed mixture 40.

[2] Organic matter determined by loss on ignition test of samples oven dried to constant weight at 212 F (100 C).

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 in this special provision. Use 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 by the square yard, acceptably completed. The measured quantities 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.0180.0301	Topsoil Special	SY

Payment for Topsoil Special 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-625-005 (20170310)

336. Soil Drying, Item SPV.0180.0601.

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

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 according 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 according 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 five 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 7 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.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0180.0601	Soil Drying	SY

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.

337. Concrete Pavement Repair Special, Item SPV.0180.0603.

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 the plans show 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 1 1/4-Inch. Obtain the engineer’s approval before using Backfill Controlled Low Strength UPRR to backfill voids that cannot be compacted with standard equipment.

Adjust and reset all drainage covers within the repair area before 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.0180.0603	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 1 1/4-inch and Backfill Controlled Low Strength UPRR separately under the corresponding bid items.

338. Asphaltic Material Binder, Item SPV.0180.0604.

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 conforming to the manufacturer's recommended rate and procedures. Avoid excessive application of asphaltic material binder and 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 at least 24 hours before preparing the test section to allow them 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.0180.0604	Asphaltic Material Binder	SY

Payment is full compensation for furnishing, mixing and applying the asphaltic material binder to the aggregate; for cleaning splatter of asphaltic material binder from adjacent structures, barriers, and pavement; and for making and disposing of test sections.

sef-460-010 (20141210)

339. Membrane Waterproofing, Item SPV.0180.4008.

A Description

This special provision describes furnishing and installing a multi-layered cold liquid-applied membrane waterproofing system continuously along the horizontal surface of the deck plates, the vertically inclined surface of the ballast stop plates, and the horizontal surface of the approach slabs of the railroad structure, according to the details shown on the plans, as directed by the engineer or the UPRR engineer, and as hereinafter provided.

B Materials

B.1 General

Furnish a cold liquid-applied elastomeric membrane, applied over a primer, and according to the requirements for Waterproofing as specified in Part 29, Chapter 8, Volume 2 of the current AREMA Specifications. The membrane must be resistant to water and resistant to chemical attack.

Before the material is installed, submit the following to the engineer and the UPRR engineer for approval:

- Material certifications and samples of the primer, membrane and any jointing material or other details developed by the waterproofing manufacturer
- Installation procedures and Installer's certification
- Inspection and field-testing criteria

B.2 Elastomeric Membrane Primer

Furnish a primer compatible with the steel deck and the elastomeric membrane. Furnish a primer compatible with the concrete approach slabs. Furnish primers consistent with the manufacturer's recommendations.

B.3 Cold Liquid-Applied Elastomeric Membrane

Furnish an elastomeric membrane that is 100% reactive spray-applied material, applied to a minimum thickness of 80 mils, that meets the following specifications:

Property	Test Method	Specific Value
Water Vapor Transmission	ASTM E96, procedure B or BW	Equal to or less than 0.2 perms, which is 0.1 grains/ft2/h (1.14x10-8g/Pa.s.m2)
Elongation at Break	ASTM D638	Minimum 80%
Min. Tensile Strength	ASTM D638	930 psi (6.4 MPa)
Adhesion to Steel	ASTM D4541	290 psi (2.0 MPa)
Adhesion to Concrete	ASTM D4541	100 psi (0.7 MPa)
Crack Bridging	ASTM C836	Meet the low temperature flexibility and crack bridging requirements of 10 cycles of 1/8 inch (3.2 mm) at -15 degrees F (-26 degrees C)

Furnish certification from an approved independent testing agency that the supplied material meets designated test performance requirements to the UPRR engineer and the engineer for review and approval.

C Construction

C.1 General

Do not apply waterproofing without written permission of the engineer and the UPRR engineer and not until a minimum of 7 days after concrete has been placed. Do not apply waterproofing when the atmospheric temperature is below 40 degrees F. Sand blast metal surfaces to remove contamination, providing 3 to 5 mil blast profile. Prepare metal surfaces to SSPC-SP10 White Blast or better. Ensure all surfaces to be waterproofed are clean, smooth, dry, and free from fins, sharp edges, oil, grease, and loose or foreign materials. Fill or remove projections or depressions on the surface on which the membrane is to be applied that may cause injury to the membrane, as directed by the engineer or the UPRR engineer. Mask protected surfaces as required prior to spray applications.

During construction, exercise care to prevent injury to the waterproofing membrane due to the passage of workers and equipment. As soon as practical after the membrane waterproofing has been placed, protect it

from damage by installing the asphalt panel protective cover. The asphalt panels are not included under this item and will be paid for separately.

C.2 Elastomeric Membrane Primer

Spray or roll primers at 400 to 600 square feet per gallon over surfaces to receive coating system. Allow primers to go tack-free before spraying deck membrane coat. Reapply primer if it has set for more than 18 hours.

C.3 Cold Liquid-Applied Elastomeric Membrane

Spray base coat of deck membrane over primed surfaces at the required thickness noted above. Retouch coat by filling low spots or areas with inadequate thickness. Spray additional deck membrane coats to achieve specified deck membrane thickness. Retouch as required. Install deck membrane protection course per manufacturer's recommendations.

C.4 Field Quality Control

Perform dry film thickness tests of the deck membrane coat according to SSPC-PA2 (Measurement of Dry Coating Thickness) as required.

C.5 Manufacturer's Representative

Arrange for manufacturer's representative of the membrane waterproofing system to observe and approve the installation. Submit a certification of installation by the manufacturer's representative to the engineer and the UPRR engineer.

D Measurement

The department will measure Membrane Waterproofing by the square yard acceptably completed. The area measured for payment will be the area of the floor plates, ballast stop plates, and the back surface of the abutment backwalls that are covered by the cold liquid-applied elastomeric membrane.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0180.4008	Membrane Waterproofing	SY

Payment is full compensation for furnishing and installing the primer; the membrane; samples and materials certifications; and for furnishing all labor, tools, equipment, materials, and incidentals necessary to complete the contract work.

340. Asphalt Panels, Item SPV.0180.4048.

A Description

This special provision describes furnishing and placing asphalt protection according to Part 29, Chapter 8, Volume 2 of the current AREMA Specifications, as shown on the plans, and as hereinafter provided.

B Materials

Submit shop drawings and data on the material and its installation, including joint details, to the engineer and the UPRR engineer for approval.

The contractor may submit an alternate protection system instead of asphalt panels to protect the membrane waterproofing, such as an additional spray on protection board layer, to the engineer and UPRR engineer for approval. Do not furnish an alternate system without the approval of the engineer and UPRR engineer.

B.1 Asphalt Panels

Use a minimum of layer of asphalt panels, in thicknesses that the plans show, according to AREMA Chapter 8, Part 29.10.3. Use 4-foot by 8-foot sections, or as approved by the engineer and the UPRR engineer.

B.2 Sealing Compound for Joints

Use a sealing compound that is compatible with both the membrane and the asphalt panels according to AREMA Chapter 8, Part 29.11. Submit to the engineer and the UPRR engineer for approval appropriate literature and samples of the sealing compound to be furnished.

C Construction

Place the asphalt protection according to AREMA Chapter 8, Parts 29.14.4.1, 29.14.4.4 and 29.14.4.5, and as hereinafter provided.

C.1 Asphalt Panels

Place the asphalt panels on top of the waterproofing membrane on top of the horizontal surface of the steel deck and approach slabs, and on the inclined or vertical surfaces of the ballast stop plates.

C.2 Joints

Lay all joints tight and seal them with an approved sealing compound as recommended by the sealant manufacturer.

C.5 Manufacturer's Representative

Arrange for manufacturer's representative of the protection system to observe and approve the installation. Submit a certification of installation by the manufacturer's representative to the engineer and the UPRR engineer.

D Measurement

The department will measure Asphalt Panels 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.0180.4048	Asphalt Panels	SY

Payment is full compensation for furnishing and placing asphalt panels and sealing compound, or furnishing and placing an alternate protection system as approved by the engineer and the UPRR engineer.

341. Fly Ash Stabilization, Item SPV.0195.0001.

A Description

This work will consist of stabilizing the prepared subgrade by mixing fly ash with the subgrade, adjusting moisture content as necessary, compacting the mixture, and curing the subgrade according to these specifications, as shown on the plans, or as directed by the engineer. This .work will be done according to the Item Fly Ash Stabilization. Fly ash will only be used to facilitate soil stabilization in cut subgrade sections after the approval and authorization of the engineer.

B Materials

Fly Ash -The contractor shall identify all sources of fly ash materials to be used for this work. The contractor shall prequalify each source of fly ash by obtaining a copy of the certified report of tests or analysis made by a qualified independent laboratory, recognized by the department. Certified reports of testing shall be less than 30 calendar days old and will be submitted to the engineer for approval 10 calendar days before using the fly ash. Fly ash shall be of the Class "C" designation containing a minimum of 25% CaO, and shall meet the chemical requirements of ASTM Specifications C-618, Section 3.3

Fly ash shall be stored and handled in closed weatherproof containers until immediately before distribution. Fly ash exposed to moisture prior to mixing with soils shall be discarded. If fly ash is furnished in trucks, each truck shall have the weight of fly ash certified on public scales or the contractor shall place a set of standard platform truck scales or hopper scales at a location approved by the engineer.

Water- Water used for mixing during the stabilization process shall comply with standard spec 501.2.4.

Equipment- The machine utilized to the blend and mix the fly ash into the subgrade shall be capable of reaching a depth of 12 inches in one pass and shall have a recycling or mixing drum. A water truck or spray bar attached to the mixing equipment shall have adequate volume control to maintain the moisture content of the mixed material within the specified range. A water truck shall be onsite during stabilization operations. A vibratory padfoot roller shall be used to achieve compaction of the mixed materials. Rubber tired rollers or smooth drum rollers will only be permitted for final finishing of the subgrade section.

All machinery, tools and equipment used shall be maintained in a satisfactory and workmanlike manner.

C Construction Methods

C.1 Submittals

C.1.2 Fly Ash Subgrade Stabilization Mix:

Prepare and submit a soil stabilization mix design at least 10 days prior to the beginning of stabilization activities. A mix design is required for each soil type and fly ash dosage rate. Resubmit the mix design for engineer approval if the mixes are modified during the course of work. Each mix design shall show include:

a. Type, source, and amount of fly ash
b. Material Safety Data Sheet (MSDS) for each fly ash source.
c. Source and amount of water, as required.
d. Representative samples of soil and fly ash materials. Provide one sample per soil type and fly ash source.
e. Atterberg Limits tests (ASTM D-4318 and AASHTO T -89 and T-90) for the untreated soil.
f. Standard Proctor tests (AASHTO T-99) on the soil and soil fly ash mixture.
g. Tests showing soil moisture loss with the proposed dosage rate.
h. Results of required tests.

C.1.3 Fly Ash Subgrade Stabilization Work Plan:
Prepare and submit a soil stabilization work plan at least 10 days prior to the beginning of stabilization activities. The work plan shall include:

a. Fly ash placement methods, mixing procedures and sequences for soil stabilization.
b. Method of transporting and distributing fly ash into the soil including rotary mixer equipment and materials.
c. Means for measuring fly ash. Use of truck tickets that specify net weight of fly ash in a truck is acceptable.
d. Proposed curing procedures and dosage rates.

C.1.4 General Requirements:

a. General

The soil-fly ash mixture shall not be mixed while the atmospheric temperature is below 32°F or when conditions indicate that temperatures may fall below 32°F within 24 hours, when it is foggy or rain is imminent, or on frozen subgrade soils.

The contractor shall use necessary methods, procedures, and equipment to minimize fly ash dust during the operation. Fly ash shall not be mixed when the engineer determines conditions such that fly ash dust may be objectionable to adjacent property owners, violate air quality standards, or significantly reduce the amount of fly ash incorporated into the work.

The work shall be completed in a workmanlike manner as to produce a completed section of stabilized soil subgrade that contains a uniform mixture of fly ash and subgrade soil that has uniform density levels and moisture content. Moisture control shall be achieved through use of equipment capable of applying sufficient quantities of water to achieve the required moisture content for the soil-fly ash mixture. The system shall be capable of being regulated to the degree necessary as to maintain moisture contents within the recommended range during the mixing and curing operations.

b. Subgrade Preparation

Prior to placement of the fly ash, the area to be processed shall be shaped to the proper grade and cross section as shown on the plans and prepared according to Section 211. All vegetation, boulders, and objectionable material shall be removed from within the limits of modification.

c. Application

The fly ash shall be spread uniformly on the prepared subgrade within the limits of the Fly Ash Stabilization. The fly ash shall be applied at a rate predetermined by the testing provided in the mix design and is subject to modification by the engineer. The subgrade shall be stabilized to a depth of 12 inches below final grade unless otherwise shown on the plans or as directed by the engineer.

The contractor shall remove and properly dispose of any fly ash placed outside of the stabilized area at no cost to the department.

d. Mixing

Mixing operations shall begin no later than 30 minutes after the beginning of the fly ash application unless otherwise directed by the engineer. The full depth of the treated subgrade shall be mixed with a rotary mixer until a homogenous, friable mixture of material free from lumps and clods is obtained. If the fly ash dosage rate fails to adequately stabilize the subgrade, additional fly ash may be added as directed by the engineer.

e. Compaction

Compaction shall begin immediately after mixing operations are completed. Compaction shall be completed within 2 hours following the incorporation of fly ash into the subgrade. During compaction, the subgrade surface shall be sprinkled with water as necessary to maintain moisture with the specified range.

The compacted mixture shall meet the quality control requirements for subgrade cut sections as defined in the QMP Subgrade special provision. Field moisture content shall have a lower control limit of 90 percent and an upper control limit of 105 percent of the optimum moisture as determined by AASHTO T99 or T272 for the 4-point running average

f. Curing

The surface of the stabilized subgrade shall be finished with compaction equipment capable of removing ruts and irregularities. Construction traffic and placement of aggregate base on the stabilized section will not be permitted in the first 24 hours after compaction is completed. The surface of the stabilized section shall be protected against rapid drying and kept at optimum moisture for a period of not less than 72 hours following compaction.

Fly ash which has been damaged by hydration due to rain prior to or during the mixing operations, improper storage, or has been displaced by the contractor’s equipment, or other traffic after application, shall be replaced at contractor cost. During cold weather, the stabilized section must be protected against freezing

D Measurement

The department will measure Fly Ash Stabilization by the ton of material, furnished and acceptably incorporated into the project.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0195.0001	Fly Ash Stabilization	TON

The price shall include full compensation for furnishing and delivering the fly ash, all required testing, mixing of the fly ash into the subgrade, removal of boulders, for adjusting subgrade moisture as necessary, for compacting the stabilized soil mixture, for trimming and shaping the stabilized mixture, for all necessary curing materials and operations, for protecting the stabilized area from freezing, for disposal of excess materials, and for all labor, equipment, tools, and incidentals necessary to complete the work.

342. Riprap Reach D Stone, Item SPV.0195.0002

A Description

This special provision describes furnishing and placing Riprap Reach D Stone. Conform to standard spec 606 as modified in this special provision.

B Materials

Replace standard spec 606.2.1(2) with the following:

Furnish stone material that shall be composed of tough, durable particles, adequately free from thin, flat and elongated pieces, and shall contain no organic matter nor soft, friable particles in quantities considered objectionable by the engineer. All Riprap Reach D Stone must be rounded to sub-rounded river rock with up to 40% of the material sub-angular. Crushed quarry stone is not acceptable. The aggregates shall meet the quality requirements of ASTM C33/C33M. Gradation shall conform to the following requirements:

U.S. STANDARD SIEVE (inch)	PERMISSIBLE LIMITS PERCENT BY WEIGHT, PASSING (%)
48	90-100
36	60-85
30	40-50
24	35-45
12	12-25
6	10-20

Provide Riprap Reach D Stone between the limits shown. Perform at least one test on each 1000 tons placed for each specified gradation according to ASTM C136/C136M.

C (Vacant)

D Measurement

The department will measure Riprap Reach D Stone 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.0195.0002	Riprap Reach D Stone	TON

Payment for Riprap Reach D Stone is full compensation for preparing the bed, providing and placing riprap, and restoring adjacent work. The department will pay for excavation in excess of the approximate volume of each occupied by the riprap under Excavation Common bid item as specified under standard spec 205.5.

343. Excavation, Hauling, and Disposal of Low-Level Contaminated Soil, Item SPV.0195.0004.

A Description

A.1 General

This special provision describes excavating, loading, hauling, and bioremediation of low-level petroleum- or metal (arsenic and lead)- contaminated soil at a DNR licensed facility. The closest DNR licensed landfill facilities that can bioremediate this soil once excavated are:

Waste Management Orchard Ridge Landfill
N96W13503 County Line Road
Menomonee Falls, WI 53051
Phone: (262) 253-8620

Advanced Disposal Emerald Park Landfill, LLC
W124 S10629 S 124th St
Muskego, WI 53150
Phone: (414) 529-1360

Perform this work according to 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 contaminated soil.

A.2 Notice to the Contractor – Contaminated Soil Location

The department and others completed testing for soil and groundwater contamination for locations within this project where excavation is required. Testing indicated that low-level petroleum- or metal (arsenic and lead)-contaminated soil is present at the following locations as shown on the plans:

- Station 109+75NO to 110+15NO from 45 feet to 95 feet left of reference line, from approximately 1 to 14 feet below grade. Approximately 34 cubic yards (approximately 58 tons at an estimated 1.7 tons per cubic yard).
- Station 110+15NO to 113+00NO from 100 feet left of reference line to 90 feet right of reference line, from approximately 1 to 16+ feet below grade. Approximately 3217 cubic yards (approximately 5469 tons at an estimated 1.7 tons per cubic yard).

If contaminated soils are encountered elsewhere on the project, terminate excavation activities in the area and notify the engineer.

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.

If dewatering is required at the above location, conduct the dewatering according to Section C below.

A.3 Excavation Management Plan

The excavation management plan for this project has been designed to minimize the offsite bioremediation of contaminated 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, PO Box 798, Waukesha, WI 53187-0798
Phone:	(262) 548-6705
Fax:	(262) 548-6891
E-mail:	andrew.malsom@dot.wi.gov

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.
Phone:	(262) 901-2126 office / (262) 227-9210 cell
Fax:	(262) 879-1220
E-mail:	bbergmann@trcsolutions.com

The role of the environmental consultant will be limited to:

1. Determining the location and limits of contaminated soil to be excavated based on soil analytical results from previous investigations, visual observations, and field screening of soil that is excavated;
2. Identifying contaminated soils to be hauled to the bioremediation facility;

3. Documenting that activities associated with management of contaminated soil are in conformance with the contaminated soil management methods for this project as specified herein; and
4. Obtaining the necessary approvals for bioremediation of contaminated soil from the bioremediation 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 areas of contamination to the environmental consultant. Also notify the environmental consultant at least three calendar days prior to commencement of excavation activities in each of the contaminated areas.

Coordinate with the environmental consultant to ensure that the environmental consultant is present during excavation activities in the contaminated areas. Perform excavation work in each of the contaminated areas on a continuous basis until excavation work is completed.

Identify the DNR licensed bioremediation facility that will be used for bioremediation of contaminated soils, and provide this information to the environmental consultant no later than 30 calendar days prior to commencement of excavation activities in the contaminated areas or at the preconstruction conference, whichever comes first. The environmental consultant will be responsible for obtaining the necessary approvals from the bioremediation facility for bioremediation of contaminated soils. Do not transport contaminated soil 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 soil contaminated with gasoline, diesel fuel, fuel oil, or other petroleum related products and metals. 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 contaminated site location 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 contaminated areas to minimize the quantity of contaminated soil excavated.

The environmental consultant will periodically monitor soil excavated from the contaminated areas. 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 soils designated by the environmental consultant for offsite disposal to the DNR approved bioremediation facility. Use loading and hauling practices that are appropriate to prevent any spills or releases of petroleum-contaminated soils or residues. Prior to transport, sufficiently dewater soils designated for off-site disposal so as not to contain free liquids.

If dewatering is required in an area of known contamination, water generated from dewatering activities may contain contaminants and require special handling and disposal. Such water may, with approval of the City of Wauwatosa and the Milwaukee Metropolitan Sewerage District (MMSD), be discharged to the sanitary sewer as follows:

- Meet all applicable requirements of the MMSD including the control of suspended solids. Perform all necessary monitoring to document compliance with MMSD's requirements. Furnish, install, operate, maintain, disassemble, and remove treatment equipment necessary to comply with MMSD's requirements.

- Ensure continuous dewatering and excavation safety at all times. Provide, operate, and maintain adequate pumping equipment and drainage and disposal facilities.

Notify the engineer of any dewatering activities and obtain any permits necessary to discharge water. Provide copies of such permits to the engineer. 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 and dewatering in the contaminated area are considered incidental to this pay item. The Wisconsin Department of Transportation will be the generator of regulated solid waste from the construction project.

Limit excavation in the location described above in A.2 to minimize the handling of groundwater. Notify the engineer of any dewatering activities, and obtain any permits necessary to discharge or dispose of contaminated 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.

D Measurement

The department will measure Excavation, Hauling, and Disposal of Low-Level Soil in tons of contaminated soil accepted by the bioremediation facility as documented by weight tickets generated by the bioremediation facility.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0195.0004	Excavation, Hauling, and Disposal of Low-Level Contaminated Soil	TON

Payment is full compensation for excavating, segregating, loading, hauling, and disposal of low-level petroleum- and metal-contaminated soil; obtaining solid waste collection and transportation service operating licenses; assisting in the collection soil samples for field evaluation; and dewatering of soils prior to transport, if necessary. No additional payment will be made for tipping fees associated with the disposal of contaminated soil.

344. Base Aggregate Dense 1 1/4-Inch Restoration, Item SPV.0195.0010.

A Description

This special provision describes furnishing Base Aggregate Dense 1 1/4-Inch Restoration. Perform this work according to the pertinent requirements of standard spec 305 and conform to the construction detail shown in the plans.

B Materials

Furnish Base Aggregate Dense 1 1/4-Inch according to the pertinent requirements of standard spec 305.

C Construction

Construction shall be according to standard spec 305 and as shown in the construction details.

D Measurement

The department will measure Base Aggregate Dense 1 1/4-Inch Restoration by the ton, acceptably completed. The department may deduct for contaminated aggregate or unrecovered aggregate deposited outside the outer shoulder 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.0195.0010	Base Aggregate Dense 1 1/4-Inch Restoration	TON

Payment for Base Aggregate Dense 1 1/4-Inch Restoration is full compensation for preparing the foundation; and for required excavation, borrow, grading, placing, shaping, compacting, and maintaining the aggregate.

345. Stone No. 2 Special, Item SPV.0195.0015.

A Description

This special provision describes furnishing and placing Stone No. 2, Special. Perform this work according to the pertinent requirements of standard spec 606 and conform to the construction detail shown in the plans.

B Materials

Replace standard spec 606.2.1(2) with the following:

(1) Use well graded coarse aggregate conforming to the following gradation requirements:

U.S. STANDARD SIEVE (inch)	PERCENT PASSING BY WEIGHT Stone no. 2 Special
2-inch	100
1 ½-inch	90-100
1-inch	20-55
3/4-inch	0-15
3/8-inch	0-5

C Construction

Construction shall be according to standard spec 606 and as shown in the construction details.

D Measurement

The department will measure Stone No. 2, Special by the ton, acceptably completed. The department may deduct for contaminated aggregate or unrecovered aggregate deposited outside the outer shoulder 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.0195.0015	Stone No. 2 Special	TON

Payment for Stone No. 2, Special is full compensation for preparing the bed, provided and placing stone, and restoring adjacent work. The department will pay for excavation in excess of the approximate volume of earth occupied by the stone under the Excavation Common bid item as specified under standard spec 205.5.

346. HMA Longitudinal Joint Repair, Item SPV.0195.0020.

A Description

This special provision describes providing longitudinal joint repairs in HMA pavements. Conform to standard spec 204, 315, 455, and 460, and as follows.

B Materials

Furnish asphaltic mixture as specified for type 3 HT 58-28 H under standard spec 460.2.

Provide tack coat conforming to standard spec 455.2.5.

C Construction

C.1 General

Remove an area 1.5 to 3 feet wide and at least to the full depth of asphaltic pavement; the engineer will determine the repair length. Remove damaged concrete pavement discovered below the asphalt during this removal, and replace with asphalt mixture.

Clean the existing exposed concrete pavement surface before placing tack coat.

Apply asphaltic materials the same day the joint is removed to prevent the entrance of water. Do not apply if weather or surface conditions are unfavorable or before impending rains.

Conform to standard spec 315.3.1 for placement of the HMA pavement.

Dispose of removed pavement and other waste materials outside of the project limits unless the engineer allows otherwise.

C.2 Maintenance

Maintain repaired joints during the contract. Remove and replace additional tack coat and HMA pavement if the engineer directs.

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.0195.0020	HMA Longitudinal Joint Repair	TON

Payment for the HMA Longitudinal Joint Repair item is full compensation for providing the joint repair including removing the existing asphaltic surface and damaged concrete; for tack coat and asphaltic pavement mixture; and for maintaining the repair during the contract.

sef-455-005 (20180104)

347. Soil Drying Agent, Item SPV.0195.0601.

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:

- 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 (A STM 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.
- Submit certificates of compliance for each load of fly ash which is according 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 according to ASTM C311.

Soil Drying Agent Work Plan: The work plan for placing the soil drying agent shall include:

- Drying agent placement methods, mixing procedures and sequences for soil drying.
- Method of transporting and distributing fly ash into the soil including rotary mixer equipment and materials.
- Means for measuring fly ash per fill area. Use of truck tickets that specify net weight of fly ash in a truck is acceptable.
- 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.

- 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.
- 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 7 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 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.0195.0601	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.

348. Base Aggregate Open Graded Special, Item SPV.0195.4008.

A Description

This special provision describes installing open graded base as fill material behind abutments as noted on the plans to construct a temporary drilling platform for drilling wall secant piles at the abutments according to standard spec 310, except as hereinafter modified.

B Materials

Furnish Base Aggregate Open Graded aggregate material conforming to standard spec 310.

Furnish Geotextile, Type SAS fabric material conforming to standard spec 645.

C Construction

Place fabric material on top of on-site soils before spreading base aggregate.

Use standard compaction to compact the base aggregate open graded material in French drains according to standard spec 301.3.4.2.

Compact the base aggregate open graded material behind abutments using general Standard Compaction procedures per Section 301.3.4.2 except as hereinafter modified. The maximum loose thickness of base aggregate per lift of fill prior to compaction is 8 inches. Compaction of the open-graded aggregate should be performed with hand-operating equipment between pile flanges and at least 3 passes using a vibratory plate compactor such as a Wacker Neuson Model DPU 5545He vibratory plate or equivalent equipment as approved by the engineer and the UPRR engineer if applicable. A minimum of three passes of the compactor are required 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 a geotechnical 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.

Verify the maximum and minimum density using test methods in ASTM D4253 and ASTM D4254, respectively. Perform one test of the compacted material placed behind abutments. Compact tested material using similar procedures described above for field compaction until no further visual densification is observed. Report the results to the engineer and the UPRR engineer for approval.

Verify the angle of internal friction through the Direct Shear Test in conformance to AASHTO T-236. Perform one test for every 500 cubic yards of compacted material placed behind abutment walls only. Compact tested material using similar procedures described above for field compaction until no further visual densification is observed. Report the results to the engineer and the UPRR engineer for approval.

D Measurement

The department will measure Base Aggregate Open Graded Special by the ton, 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.0195.4008	Base Aggregate Open Graded Special	TON

Payment is full compensation for preparing the foundation, including excavation of French drains; and for stockpiling, placing, shaping, compacting, and maintaining the base. The department will pay for EBS in areas of placed base (as noted on the plans and elsewhere, if required due to unstable soil as determined by the engineer), dust control water, and compaction water as specified in standard spec 301.5.

349. Backfill Modular Retaining Wall, Item SPV.0195.4029.

A Description

This special provision describes furnishing and placing material between the stems of precast concrete modular retaining walls and wingwalls at the locations shown on the plan and according to this special provision.

B Materials

Furnish material conforming either to Base Aggregate Dense 1 ¼-Inch Special or Base Aggregate Open Graded Special, as specified elsewhere in these special provisions.

C Construction

Place and compact the chosen material as allowed in subsection B of this special provision, conforming to requirements specified elsewhere in these special provisions.

D Measurement

The department will measure Backfill Modular Retaining Wall by the ton, acceptably completed. 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 may deduct for contaminated aggregate or un-recovered aggregate deposited outside the embankment 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.0195.4029	Backfill Modular Retaining Wall	TON

Payment is full compensation for providing all material; providing all equipment; preparing the foundation; stockpiling, placing, shaping, compacting, testing, and maintaining the embankment.

Sub-ballast and ballast are not included in this item. Sub-ballast and ballast are included in the item "Construct 136lb ISHH CWR on Wood Ties" located elsewhere in these special provisions.

350. Removing Wood Poles UPRR, Item SPV.0195.5001.

A Description

A.1 General

This special provision describes removing the entire wood pole located in the project limits of the UPRR corridor out from the ground, loading and hauling the removed wood pole to a licensed solid waste disposal facility.

A.2 Environmental Protection – Waste

Conduct construction activities in an environmentally sound manner, including the proper disposal of all demolition material that cannot be recycled. Follow the guidelines set forth in the Article "Environmental Protection – Waste".

B (Vacant)

C Construction

Utility wood poles currently erected, downed, or stacked in piles shall be removed in its entirety from the ground. No part of any wood pole shall remain in the ground or buried on-site. The wood shall be hauled to a licensed landfill disposal facility.

D Measurement

The department will measure the Removing Wood Poles UPRR bid item, acceptably completed by the ton. The contractor shall provide a ticket from a licensed landfill disposal facility with a certified scale thatwill represent an accurate weight of the wood delivered to the landfill. Should the poles become moisturized during delivery, the engineer may use engineering judgement to determine the actual weight of a dry wood pole.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0195.0001	Removing Wood Poles UPRR	TON

Payment is full compensation for removing and hauling wood poles to a licensed solid waste disposal facility. The contractor shall be compensated for the unit weight of the wood pole waste.

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 9 *(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 (DBE) PROGRAM IMPLEMENTATION

Authority

Wisconsin Department of Transportation (WisDOT) is a recipient of funds from the US Department of Transportation's Federal Highway Administration. The DBE program is a federal program applicable on all contracts administered by WisDOT that include federal-aid highway funds. The authority for the DBE program is the Transportation Bill as approved by Congress periodically. DBE program guidance and requirements are outlined in the Code of Federal Regulations at 49 CFR Part 26. This contract is subject to DBE provisions because it is financed with federal-aid-highway funds. Additionally, this contract is subject to the *State of Wisconsin Standard Specifications for Highway and Structure Construction* and all applicable contract documents.

Requirements

Pursuant to the federal DBE program regulation at 49 CFR Part 26, a contractor's failure to comply with any provision of the DBE program regulatory provisions will be considered a material breach of contract. This is nonnegotiable.

If a contractor fails to carry out the DBE program requirements and/or the Required Contract Provisions for Federal Aid Contracts (FHWA 1273) referenced in this document, sanctions will be assessed depending upon the facts, reasoning, severity, and remedial efforts of the contractor that may include: termination of contract, withholding payment, assessment of monetary sanctions, and/or suspension/debarment proceedings that could result in the disqualification of the contractor from bidding for a designated period of time.

(1) At time of bid, ALL prime contractors shall submit Form DT1506 (Commitment to Subcontract to DBE), and signed Attachments A. If the assigned DBE contract goal is not met, Form DT1202 (Documentation of Good Faith Effort) is due at time of bid. Supplemental DT1202 documentation is due within 24-hours of bid closing, submitted to the DBE Alert email box. Any change to DBE commitments thereafter must follow Modification of DBE Subcontracting Commitment (Section 9).

(2) The Department requires this list of DBE subcontractors from all bidders at time of bid to ensure the lowest possible cost to taxpayers and fairness to other bidders and subcontractors. Bid Shopping is prohibited.

(3) The contractor shall utilize the specific DBE firms listed on the approved Form, DT1506, to perform the work and/or supply the materials for which the DBE firm is listed unless the contractor obtains written consent from WisDOT. The contractor shall not be entitled to payment for any work or materials on the approved DT1506 that is not performed or supplied by the listed DBE without WisDOT's written consent.

Description

The Wisconsin Department of Transportation is committed to the compliant administration of the DBE Program. The DBE provisions work in tandem with FHWA 1273 and WisDOT's Standard Specifications and Construction Materials Manual. The WisDOT Secretary is signatory to assurances of department-wide compliance.

The department assigns the contract DBE goal as a percentage of work items that could be performed by certified DBE firms on the contract. The assigned DBE goal is expressed on the bid proposal as a percentage applicable to the total contract bid amount.

(1) WisDOT identifies the assigned DBE goal in its contract advertisements and posts the contract DBE goal on the cover of the bidding proposal. The contractor can meet the assigned contract DBE goal by subcontracting work to a DBE firm or by procuring services or materials from a DBE firm.

(2) Under the contract, the prime contractor should inform, advise, and develop participating DBE firms to be more knowledgeable contractors who are prepared to successfully complete their contractual agreement through the proactive provision of assistance in the following areas:
- § Produce accurate and complete quotes
- § Understand highway plans applicable to their work
- § Understand specifications and contract requirements applicable to their work
- § Understand contracting reporting requirements

(3) The department encourages contractors to assist DBE subcontractors more formally by participating in WisDOT's Business Development program as a mentor, coach, or resource. For comprehensive information on the Disadvantaged Business Enterprise Program, visit WisDOT's Civil Rights and Compliance Section website at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/dbe/default.aspx

1. Definitions

Interpret these terms, used throughout this additional special provision, as follows:

a. **Assigned DBE Contract Goal:** The percentage shown on the cover of the Highway Work Proposal that represents the feasible level of DBE participation for each contract. The goal is calculated using the Engineer's Estimate and DBE Interest Report. Goal assignment includes review of FHWA funds, analyzes bid items for subcontract opportunity and compatibility with DBE certified firm work codes. Additional factors considered include proximity, proportion, and regulations.

b. **Bid Shopping:** In construction law, bid shopping is the practice of divulging a subcontractor's bid to another prospective contractor(s) before or after the award of a contract to secure a lower bid.

c. **DBE:** Disadvantaged Business Enterprise- for-profit small business concern where socially and economically disadvantaged individuals own at least a 51% interest and control management and daily business operations.

d. **DBE Commitment:** The DBE Commitment is identified in the Commitment to Subcontract to DBE (Form DT1506) and is expressed as the amount of DBE participation the prime contractor has secured. The DT1506, a contract document completed by the bidder, is required to be considered a responsive bidder on an FHWA-funded contract that has an assigned DBE goal.

e. **DBE Utilization:** The actual participation of a DBE subcontractor on a project. WisDOT verifies DBE utilization through review of Form DT1506, payments to subcontractors, and contract documentation. The Prime Contractor receives DBE credit for payments made to the DBE firms performing the work listed on the approved Form DT1506, and those submitted after approved commitment with Attachment A.

f. **Good Faith Effort:** Legal term describing a diligent and honest effort taken by a reasonable person under the same set of facts or circumstances. For DBE subcontracting, the bidder must show that it took all necessary and reasonable steps to achieve the assigned DBE goal by the scope, intensity, and appropriateness of effort that could reasonably be expected for a contractor to obtain sufficient DBE participation.

g. **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.

h. **Reasonable Price:** Contractors are expected to assess reasonable price by analyzing the contract scope for DBE subcontract feasibility and comparing common line items in DBE and non-DBE subcontract quotes for the same work. Per federal regulation, reasonable price is not necessarily the lowest price.

i. **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.

j. **Tied quote:** Subcontractor quote that groups multiple bid/line items at a bundled/package price with a notation that the items within the quote shall not be separated.

2. WisDOT DBE Program Compliance

a. Documentation Submittal

The Commitment to Subcontract to DBE (Form DT1506) and signed Attachments A shall be submitted at bid by ALL prime contractors. If the assigned DBE contract goal is not met, Documentation of Good Faith Effort (Form DT1202) is due at time of bid. Supplemental DT1202 documentation is due within 24-hours of bid closing, submitted to the DBE Alert email box.

Naming conventions: When emailing files, please use the following language to identify your submission- "Project #, Proposal #, Let date, Business Name, GFE" Email: DBE_Alert@dot.wi.gov

The DBE Office will not certify Good Faith Effort and the Bureau of Project Development will consider the bid nonresponsive if the contractor fails to furnish the Form DT1506, Attachments A, and Form DT1202 if applicable, as required. See sample forms in the Appendix.

b. Verification of DBE Commitment

The documentation related to DBE subcontract commitment submitted prior to contract award is evaluated as follows:

(1) DBE Goal Met

If the bidder indicates that the contract DBE goal is met, the department will evaluate Form DT1506 and Attachments A to verify the actual DBE percentage calculation. If the DBE commitment is verified, the contract is eligible for award with respect to the DBE commitment.

(2) DBE Goal Not Met

a) If the bidder indicates a bid percentage on Form DT1506 that does not meet the assigned DBE contract goal, the bidder must request alternative evaluation of good faith effort through submission of Form DT1202 (Documentation of Good Faith Effort) at the time of bid including narrative description. Supplementary documentation of good faith effort that supports the DT1202 submission is due within 24-hours of bid submission and prior to bid posting. The department will review the bidder's DBE commitment and evaluate the bidder's good faith efforts submission.

b) Following evaluation of the bidder's Good Faith Effort documentation the bidder will be notified that the department intends to:
   1. *Approve* the request (adequate documentation of GFE has been submitted)- no conditions placed on the contract with respect to the DBE commitment;
   2. *Deny* the request (inadequate documentation of GFE has been submitted)- the contract is viewed as non-responsive per Wisconsin Standard Specifications for Highway and Structure Construction and will not be executed.

c) If the department denies the bidder's request, the contract is ineligible for award. The department will provide a written explanation for denying the request to the bidder. The bidder may appeal the department's denial (see Section 4).

Supplemental good faith effort documentation must be submitted to the DBE Office by email at: DBE_Alert@dot.wi.gov or by postal mail - ATTN: DBE Office, PO Box 7986, Madison, WI 53707-7986. Email naming convention: “Project #, Proposal #, Let date, Business Name, GFE”

3. Department's Criteria for Good Faith Effort Documentation

The Federal-aid Construction Contract Provision, referenced as FHWA-1273, explicitly states that the prime contractor shall be responsible for all work performed on the contract by piecework, station work, or subcontract. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of the contract including assurances of equal employment opportunity laws, DBE regulations, and affirmative action. Compliance encompasses responsible and responsive action, documentation, and good faith effort.

Contractually, all contractors, subcontractors, and service providers on the contract are bound by FHWA 1273 and DBE program provisions. **Prime contractors should encourage subcontractors to utilize DBE firms whenever possible to contribute to the assigned DBE contract goal.**

Bidders are required to document good faith effort. Per 49 CFR Part 26.53, good faith effort is demonstrated in one of two ways. The bidder:

(1) Documents that it has obtained enough DBE participation to meet the goal; OR
(2) Documents that it made adequate good faith efforts to meet the goal, even though it did not succeed

Appendix A of 49 CFR Part 26 provides guidance concerning good faith efforts. WisDOT evaluates good faith effort on a contract basis just as each contract award is evaluated individually.

The efforts employed by the bidder should be those that WisDOT can reasonably expect a bidder to take to actively and aggressively obtain DBE participation sufficient to meet the DBE contract goal. The department will only approve demonstration of good faith effort if the bidder documents the quality, quantity, and intensity of the variety of activities undertaken that are commensurate with expected efforts to meet the stated goal.

The department, in conjunction with industry stakeholders, has developed the following guidance for contractor good faith effort activity. 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.

a. Solicitation guidance for Prime Contractors:
   - **(1)** Document all efforts and decisions made toward achieving the DBE goal on the contract. The bidder should use WisDOT-approved DBE outreach tools, including the UCP DBE Directory and the Bid Express Small Business Network to foster DBE participation on all applicable contracts.
   - **(2)** As needed, request assistance with DBE outreach and follow-up by contacting the department's DBE Support Services Office by phone or email request at least 14 days prior to the bid letting date. Phone numbers are (414) 438-4584 and/or (608) 267-3849; Fax: (414) 438-5392; E-mail: DBE_Alert@dot.wi.gov
   - **(3)** Participate in and document a substantive conversation with at least one DBE firm per Let, to discuss questions, concerns, and any other contract related matters that may be applicable to the DBE firm. Guidelines for this conversation are provided in Appendix A of ASP-3.
   - **(4)** Request quotes by identifying potential items to subcontract and solicit. In their initial contacts, contractors are strongly encouraged to include a single page, 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 B. 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 firms to do work in a prime contractor’s area of specialization.

i. Solicit quotes from certified DBE firms who match possible items to subcontract using all reasonable and available means. Additionally, forward copies of solicitations highlighting the work areas for which quotes are being sought to DBE_Alert@dot.wi.gov
ii. Acceptable outreach tools include SBN (Small Business Network, see Appendix C): https://www.bidx.com/wi/main, postal mail, email, fax, and phone.
    a. Contractors must ask DBE firms for a response in their solicitations. See *Sample Contractor Solicitation Letter,* Appendix B. This letter may be included as an attachment to the sub-quote request.
    b. Solicit quotes at least 10 calendar days prior to the letting date to allow DBE firms sufficient time to respond. Prime contractors should contact DBE firms early, asking if they need help organizing their quote, assistance confirming equipment needs, or other assistance supporting their submission of a competitive quote for their services.
    c. A follow up solicitation should take place within 5 calendar days of the letting date. Email and/or SBN are the preferred method for the solicitation.
iii. 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.
iv. When potential exists, the contractor should advise interested DBE firms on how to obtain bonding, line of credit, or insurance if requested.
v. 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. Signed copy of record of subcontractor outreach effort

b. Guidance for Evaluating DBE quotes
(1) Quote evaluation practices required to evaluate DBE quotes:
i. Reasonable Price**:** Contractors are expected to assess reasonable price by analyzing the contract scope for DBE subcontract feasibility and comparing common line items in DBE and non-DBE subcontract quotes for the same work. Per federal regulation, reasonable price is not necessarily the lowest price. See 49 CFR Part 26, Appendix A. IV.D(2).
(2) Documentation submitted by the prime of the following evaluation is required to evaluate DBE quotes by contractors:
i. Evaluation of DBE firm's ability to perform "possible items to subcontract" using legitimate reasons, including but not limited to, ***a discussion*** between the prime and DBE firm regarding its capabilities prior to the bid letting. If lack of capacity is the reason for not utilizing the DBE firm's quote, the prime is required to contact the DBE by phone and email regarding their ability to perform the work indicated in the UCP directory listed as their work area by NAICS code. Only the work area indicated by the NAICS code(s) listed in the UCP directory can be counted toward DBE credit. Documentation of the conversation is required.
    a In striving to meet an assigned DBE contract goal, contractors are expected to use DBE quotes that are responsive and reasonable. This includes DBE quotes that are not the low quote.
    b Additional evaluation - Evaluation of DBE quotes with tied bid items. Typically, this type of quoting represents a cost saving but is not clearly stated as a discount. Tied quotes are usually presented as an 'all or none' quote. When non-DBE subcontractors submit tied bid items in their quotes, the DBE firm's quote may not appear competitive. In such a case, the following steps are taken in comparing the relevant quotes. These are qualitative examples:
        i Compare bid items common to both quotes, noting the reasonableness in the price comparison.

ii 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.

See Appendix D – *Good Faith Effort Evaluation Measures* and Appendix E - *Good Faith Effort Best Practices.*

c. Requesting Good Faith Effort Evaluation: At the time of bid- if the DBE goal is not met in full, the prime contractor must request alternative Good Faith Effort Evaluation using form DT1202- Documentation of Good Faith Effort. Supplementary documentation of good faith effort that supports the DT1202 submission is due within 24-hours of bid submission and prior to bid posting. Supporting documentation for the DT1202 is to include the following:

(1) Solicitation Documentation: The names, addresses, email addresses, and telephone numbers of DBE firms contacted along with the dates of both initial and follow-up contact; electronic copies of all written solicitations to DBE firms. A printed copy of SBN solicitation is acceptable.

(2) Selected Work Items Documentation: Identify economically feasible work units to be performed by DBEs to include activities such as: list of work items to be performed; breaking up of large work items into smaller tasks or quantities; flexible time frames for performance and delivery schedules.

(3) Documentation of Project Information provided to interested DBEs: A description of information provided to the DBE firms regarding the plans, specifications, and estimated quantities for portions of the work to be performed by that DBE firm.

(4) Documentation of Negotiation with Interested DBEs: Provide sufficient evidence to demonstrate that good faith negotiations took place. Merely sending out solicitations requesting bids from DBEs does not constitute sufficient good faith efforts.

(5) Documentation of Sound Reasoning for Rejecting DBEs and copies of each quote received from a DBE firm and, if rejected, copies of quotes from non-DBEs for same items.

(6) Documentation of Assistance to Interested DBEs- Bonding, Credit, Insurance, Equipment, Supplies/Materials

(7) Documentation of outreach to Minority, Women, and Community Organizations and other DBE Business Development Support: Contact organizations and agencies for assistance in contacting, recruiting, and providing support to DBE subcontractors, suppliers, manufacturers, and truckers at least 14 days before bid opening. Participate in or host activities such as networking events, mentor-protégé programs, small business development workshops, and others consistent with DBE support.

Naming conventions: When emailing files, please use the following language to identify your submission- "Project #, Proposal #, Let date, Business Name, GFE" Email: DBE_Alert@dot.wi.gov

If the Good Faith Effort documentation is deemed adequate, the request will be approved and the DBE office will promptly notify the Prime Contractor and Bureau of Project Development.

If the DBE Office denies the request, the Prime Contractor will receive written correspondence outlining the reasons. The department encourages the Prime Contractor to communicate with DBE staff to clarify any questions related to meeting goals and/or contractor demonstration of good faith efforts.

If the contract is awarded, the Prime Contractor must obtain written consent from the DBE Office to change or replace any DBE firm listed on the approved Form DT1506. No contractor, prime or subsequent tier, shall be paid for completing work assigned to a DBE subcontractor on an approved DT1506 unless WisDOT has granted permission for the reduction, replacement, or termination of the assigned DBE in writing. If a prime contractor or a subcontractor on any tier uses its own forces to perform work assigned to a DBE on an approved DBE commitment, **they will not be paid for the work**. Any changes to DBE commitment after the approval of Form DT1506 must be reviewed and approved by the DBE Office prior to the change (see Section 9).

4. Bidder's Documentation of Good Faith Effort Evaluation Request Appeal Process

A bidder can appeal the department's decision to deny the bidder's demonstration of Good Faith Effort through Administrative Reconsideration. The bidder must provide a written justification refuting the specific reasons for denial as stated in the department's denial notice. The bidder may meet in person with the department if so requested. Failure to appeal within 5 business days after receiving the department's written notice denying the request constitutes a forfeiture of the bidder's right of appeal. Receipt of appeal is confirmed by email date stamp or certified mail signed by WisDOT staff. A contract will not be executed without documentation that the DBE provisions have been fulfilled.

The department will appoint a representative who did not participate in the original good faith effort determination, to assess the bidder's appeal. The department will issue a written decision within 5 business days after the bidder presents all written and oral information. In that written decision, the department will explain the basis for finding that the bidder did or did not demonstrate an adequate good faith effort to meet the contract DBE goal. The department's decision is final.

5. Determining DBE Eligibility

Directory of DBE firms

a. The only resource for DBE firms certified in the State of Wisconsin is the Wisconsin Unified Certification Program (UCP) DBE Directory. WisDOT maintains a current list of certified DBE firms at: http://wisconsindot.gov/Documents/doing-bus/civil-rights/dbe/dbe-ucp-directory.xlsx

b. The DBE Program office is available to assist with contracting DBE firms:(608) 267-3849.

c. DBE firms are certified based on various factors including the federal standards from the Small Business Administration that assigns a North American Industrial Classification (NAICS) Codes. DBE firms are only eligible for credit when performing work in their assigned NAICS code(s). If a DBE subcontractor performs work that is not with its assigned NAICS code, the prime contractor should contact the DBE Office to inquire about compatibility with the Business Development Program.

6. Counting DBE Participation

Assessing DBE Work

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 UCP agencies. 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:

a. The department counts work performed by the DBE firm's own resources. The department includes the cost of materials and supplies the DBE firm obtains for the work. The department also includes the cost of equipment the DBE firm leases for the work. The department will not include the cost of materials, supplies, or equipment the DBE firm purchases or leases from the prime contractor or its affiliate, with the exception of non-project specific leases the DBE has in place before the work is advertised.

b. The department counts fees and commissions the DBE subcontractor charges for providing 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 program engineer deems reasonable based on experience or prevailing market rates.

c. If a DBE firm subcontracts work, the department counts the value of the work subcontracted to a DBE subcontractor.

d. The contractor shall maintain records and may be required to furnish periodic reports documenting its performance under this item.

e. It is the Prime Contractor's responsibility to determine whether the work that is committed and/or contracted to a DBE firm can be counted for DBE credit by referencing the work type and NAICS code listed for the DBE firm on the Wisconsin UCP DBE Directory.

f. It is the Prime Contractor's responsibility to assess the DBE firm's ability to perform the work for which it is committing/contracting the DBE to do. Note that the department encourages the Prime Contractor to assist and develop DBE firms to become fully knowledgeable contractors to successfully perform on its contracts.

g. The Prime Contractor shall inform the DBE office via email of all DBE subcontractors added to the project following execution of the contract. The Prime Contractor may omit submission of another form DT1506, but must submit signed Attachment A forms for additional DBE firms.

h. See Section 7 for DBE credit evaluation for Trucking and Section 8 for DBE credit evaluation for Manufacturers, Suppliers, and Brokers

Naming conventions: When emailing files, please use the following language to identify your submission- "Project #, Proposal #, Let date, Business Name, Attachment A" Email: DBE_Alert@dot.wi.gov

*Note: A sublet request is required for DBE work, regardless of subcontract tier, and also for reporting materials or supplies furnished by a DBE.

- Sublet Requests via form DT1925 or WS1925 are required for 1st Tier DBEs
- For all 2nd Tier and below notification of DBE sublet is indicated by the contractor entering them in CRCS

7. Credit Evaluation for Trucking

All bidders are expected to adhere to the department's current trucking policy posted on the HCCI website at: http://wisconsindot.gov/Documents/doing-bus/civil-rights/dbe/trucking-utilization-policy.pdf

The prime contractor is responsible for ensuring that all subcontractors including trucking firms, receive Form FHWA 1273: https://www.fhwa.dot.gov/programadmin/contracts/1273/1273.pdf

See Section 8 for Broker credit.

8. Credit Evaluation for Manufacturers, Suppliers, Brokers

The department will calculate the amount of DBE credit awarded to a prime using a DBE firm for the provisions of materials and supplies on a contract-by-contract basis. The department will count the material and supplies that a DBE firm provides under the contract for DBE credit based on whether the DBE firm is a manufacturer, supplier, or broker. Generally, DBE credit is determined through evaluation of the DBE owner's role, responsibility, and contribution to the transaction. Maximum DBE credit is awarded when the DBE firm manufactures materials or supplies. DBE credit decreases when the DBE firm solely supplies materials, and minimal credit is allotted when the DBE firm's role is administrative or transactional. It is the bidder's responsibility to confirm that the DBE firm is considered a supplier or a manufacturer before listing them on Commitment to Subcontract to DBE form DT1506.

a. Manufacturers
   (1) A manufacturer is 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 and of the general character described by the specifications.
   (2) If the materials or supplies are obtained from a DBE manufacturer, **100%** percent of the cost of the materials or supplies counts toward DBE goals.

b. Regular Dealers of Material and/or Supplies
   (1) Supplies purchased in bulk from DBE firms at the beginning of the season may be credited to current contracts if submitted with appropriate documentation to the DBE office.
   (2) A regular dealer is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business.
   (3) If the materials or supplies are purchased from a DBE regular dealer, count **60%** percent of the cost of the materials or supplies toward DBE goals.
   (4) At a minimum, a regular dealer must meet the following criteria to be counted for DBE credit:
      i. The DBE firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question.
      ii. The DBE firm must both own and operate distribution equipment for the product--bulk items such as petroleum products, steel, cement, gravel, stone, or asphalt. If some of the distribution equipment is leased, the lease agreement must accompany the DBE Commitment form for evaluation of the dealer's control before the DBE office approves the DBE credit.
   (5) When DBE suppliers are contracted, additional documentation must accompany form DT1506 and Attachment A forms. An invoice or bill-of-sale that includes names of the bidder and the DBE supplier, along with documentation of the calculations used as the basis for the purchase agreement, subcontract, or invoice. WisDOT recognizes that the amount on the Attachment A form may be more or less than the amount on the invoice per b.(1) above.
      i. The bidder should respond to the following questions and include with submission of form DT1506:
         a. What is the product or material?
         b. Is this item in the prime's inventory or was the item purchased when contract was awarded?
         c. Which contract line items were referenced to develop this quote?
         d. What is the amount of material or product used on the project?

c. Brokers, Transaction Expediters, Packagers, Manufacturers' Representatives
   (1) No portion of the cost of the materials, supplies, services themselves will count for DBE credit. However, WisDOT will evaluate the fees or commissions charged when a prime purchases materials, supplies, or services from a DBE certified firm which is neither a manufacturer nor a regular dealer, namely: brokers, packagers, manufacturers' representatives, or other persons who arrange or expedite transactions.
   (2) Brokerage fees are calculated as **10%** of the purchase amount.
   (3) WisDOT may count the amount of fees or commissions charged for assistance in the procurement of the materials and supplies, fees, or transportation charges for the delivery of materials or supplies required on a job site.
   (4) Evaluation of DBE credit includes review of the contract need for the item/service, the sub-contract or invoice for the item/service, and a comparison of the fees customarily allowed for similar services to determine whether they are reasonable.

9. DBE Commitment Modification Policy (Formerly "DBE Replacement Policy")

A. Issuing a Contract Change Order

Any changes or modifications to the contract once executed are considered contract modifications and as such require a change order. In addition, the DBE office must provide consent for reduction, termination, or replacement of subcontractors approved on the DT1506 *in advance* of the modification for the prime contractor to receive payment for work or supplies. Additions to the DBE commitment do not require advance notification of the DBE office. (see D below)

Contractor Considerations

1. A prime contractor cannot modify the DBE commitment through reduction in participation, termination, or replacement of a DBE subcontractor listed on the approved DT1506 without prior written consent from the DBE Office. This includes, but is not limited to, instances in which a prime contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm.

2. If a prime contractor reduces participation, replaces, or terminates a DBE subcontractor who has been approved for DBE credit toward its contract, the prime is required to provide documentation supporting its inability to fulfill the contractual commitment made to the department regarding the DBE utilization.

3. The Prime Contractor is required to demonstrate efforts to find another DBE subcontractor to perform at least the same amount of work under the contract as the DBE subcontractor that was terminated, to the extent needed to meet the assigned DBE contract goal.

4. When additional opportunity is available by contract modifications, the Prime Contractor must utilize DBE subcontractors that were committed to equal work items, in the original contract.

5. In circumstances when a DBE subcontractor fails to complete its work on the contract for any reason, or is terminated from a contract, the Prime Contractor must undertake efforts to maintain its commitment to the assigned DBE goal.

6. The DBE subcontractor should communicate with the Prime Contractor regarding its schedule and capacity in the context of the contract. If the DBE firm anticipates that it cannot fulfill its subcontract, they shall advise the Prime Contractor and suggest a DBE subcontractor that may replace their services and provide written consent to be released from its subcontract.

   (a) Before the Prime Contractor can request modification to the approved DT1506, the Prime Contractor must:

   i. Make every effort to fulfill the DBE commitment by working with the listed DBE subcontractor to ensure that the firm is fully knowledgeable of the Prime Contractor's expectations for successful performance on the contract. Document these efforts in writing.
   ii. If those efforts fail, provide written notice to the DBE subcontractor of the Prime Contractor's intent to request to modify the commitment through reduction in participation, termination, and/or replacement of the subcontractor including the reason(s) for pursuing this action.
   iii. Copy the DBE Office on all correspondence related to changing a DBE subcontractor who has been approved for DBE credit on a contract, including preparation and coordination efforts.
   iv. Clearly state the amount of time the DBE firm has to remedy and/or respond to the notice of intent to replace/terminate. The DBE must be allowed five days from the date notice was received as indicated by email time stamp or signed certified mail, to respond, in writing. **EXCEPTION:** The Prime Contractor must provide a verifiable reason for a response period shorter than five days. For example, a WisDOT project engineer or project manager confirms that WisDOT has eliminated an item the DBE subcontractor was contracted for.

v. The DBE subcontractor must acknowledge the contract modification with written response to the Prime Contractor and the DBE Office. If objecting to the subcontract modification, the DBE subcontractor must outline the basis for objection to the proposed modification, providing sound reasoning for WisDOT to reject the prime's request.

B. Request to Modify DBE Subcontracting Commitment

The written request referenced above may be delivered by email or fax. The request must contain the following:

1. Project ID number
2. WisDOT Contract Project Engineer's name and contact information
3. DBE subcontractor name and work type and/or NAICS code
4. Contract's progress schedule
5. Reason(s) for requesting that the DBE subcontractor be replaced or terminated
6. Attach/include all communication with the DBE subcontractor to deploy/address/resolve work completion

Naming conventions: When emailing files, please use the following language to identify your submission- "Project #, Proposal #, Let date, Business Name, MODIFICATION" Email: DBE_Alert@dot.wi.gov + Project Engineer

WisDOT will review the request and any supporting documentation submitted to evaluate if the circumstance and the reasons constitute good cause for replacing or terminating the approved DBE subcontractor.

Good Causes to Replace a DBE subcontractor according to the federal DBE program guidelines {49 CFR part 26.53}

- The listed DBE subcontractor fails or refuses to execute a written contract
- The listed DBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the prime contractor
- The listed DBE subcontractor fails or refuses to meet the prime contractor's reasonable, nondiscriminatory bond requirements
- The listed DBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness
- The listed DBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR Parts 180, 215, and 1,200 or applicable state law
- The prime has determined that the listed DBE subcontractor is not a responsible contractor
- The listed DBE subcontractor voluntarily withdraws from the project and provides written notice of its withdrawal
- The listed DBE subcontractor is ineligible to receive DBE credit for the type of work required
- A DBE firm owner dies or becomes disabled with the result that the listed DBE subcontractor is unable to complete its work on the contract

C. Evaluation and Response to the Request

WisDOT's timely response to the Prime Contractor's request for modification of the approved DBE subcontracting commitment will be provided to the prime and the WisDOT project engineer via email.

If WisDOT determines that the Prime Contractor's basis for reduction in participation, replacement, or termination of the DBE subcontractor is not consistent with the good cause guidelines, the DBE office will provide a response via email within 48-hours of receipt of request from the Prime Contractor as indicated by email time stamp. The communication will include: the requirement to utilize the committed DBE, actions to support the completion of the contractual commitment, a list of available WisDOT support services, and administrative remedies, including withholding payment to the prime, that may be invoked for failure to comply with federal DBE guidelines for DBE replacement.

The WisDOT contact for all actions related to modification of the approved Form DT1506 is the DBE Program Engineer who can be reached at DBE_Alert@dot.wi.gov or (608) 264-9528.

D. DBE Utilization beyond the approved DBE Commitment (Form DT1506)

When the prime or a subcontractor increases the scope of work for an approved DBE subcontractor or adds a DBE subcontractor who was not on the approved form DT1506 at any time after contract execution, this is referred to as voluntary DBE contract goal achievement. The contractor must follow these steps to ensure that the participation is accurately credited toward the DBE goal:

a. Forward a complete, signed Attachment A form to the DBE Office. A complete Attachment A includes DBE subcontractor contact information, signatures, subcontract value, and description of the work areas to be performed by the DBE. The DBE Office will verify the DBE participation and revise the DT1506 based on the email/discussion and the new Attachment A.

b. When adding to an existing DBE commitment, submit a new Attachment A to the DBE Alert mailbox

c. OR Submit a final Attachment A to DBE Alert during the Finals Process when Compliance receives notice of "Substantially Complete"

Naming conventions: When emailing files, please use the following language to identify your submission- "Project #, Proposal #, Let date, Business Name, *New* Attachment A" Email: DBE_Alert@dot.wi.gov

Special note on trucking

- DBE truckers added to the sublets in CRCS *will* be approved without DBE credit (You will see a "N" in CRCS instead of "Y")
- Prime Contractors may enter a "place holder" e.g. $1000.00, for DBE Trucking in CRCS if the full amount of trucking is unknown for sublet purposes only
- The hiring contractor may obtain the Attachment A with DBE signature included but the **Prime Contractor** must sign the Attachment A before submitting

10. Commercially Useful Function

a. Commercially Useful Function (CUF) is evaluated after the contract has been executed, while the DBE certified firm is performing contracted work items.

b. The department uses Form DT1011, DBE Commercially Useful Function Review and Certification to evaluate if the DBE is performing a commercially useful function. WisDOT counts expenditures of a DBE toward the DBE goal only if the DBE is performing a commercially useful function on that contract.

c. A DBE firm is performing a commercially useful function if the following conditions are met:
   (1) For contract work, the DBE is responsible for executing a distinct portion of the work and is carrying out its responsibilities by actually performing, managing, and supervising that work.
   (2) For materials and supplies, the DBE is responsible for negotiating price, determining quality and quantity, ordering, and paying for those materials and supplies.

11. Credit Evaluation for DBE Primes

WisDOT calculates DBE credit based on the amount and type of work performed by DBE certified firms for work submitted with required documentation. If the prime contractor is a DBE certified firm, the department will only count the work that the DBE prime performs with its own forces for DBE neutral credit. The department will also calculate DBE credit for work performed by any other DBE certified subcontractor, DBE certified supplier, and DBE certified manufacturer on the contract in each firm's approved NAICS code/work

areas that are submitted with required documentation. Crediting for manufacturers and suppliers is calculated consistent with Section 8 of this document and 49 CFR Part 26.

12. Joint Venture

If a DBE performs as a participant in a joint venture, the department will only count the portion of the total dollar value of the contract equal to the portion of the work that the DBE performs with its own forces, for DBE credit.

13. 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. DBE credit is evaluated and confirmed by the DBE Office for any contracts on which the mentor-protégé team identifies itself to the DBE Office as a current participant of the Mentor-Protégé Program.

c. Refer to WisDOT's Mentor-Protégé guidelines for guidance on the number of contracts and amount of DBE credit allowed on WisDOT projects.

14. Use of Joint Checks

The use of joint checks is allowable if it is a commonly recognized business practice in the material industry. A joint check is defined as a two-party check between a DBE subcontractor, a prime contractor, and the regular dealer or materials supplier who is neither the prime nor an affiliate of the prime. Typically, the prime contractor issues one check as payor to the DBE subcontractor and to the supplier jointly (to guarantee payment to the supplier) as payment for the material/supplies used by the DBE firm in cases where the DBE subcontractor and materials have been approved for DBE credit. The DBE subcontractor gains the opportunity to establish a direct contracting relationship with the supplier to potentially facilitate a business rapport that results in a line of credit or increased partnering opportunities.

The cost of material and supplies purchased by the DBE firm is part of the value of work performed by the DBE to be counted toward the goal. To receive credit, the DBE firm must be responsible for negotiating price, determining quality and quantity, ordering the materials, and installing (where applicable) and "paying for the material itself." See 49 CFR 26.55(c)(1).

The approval to use joint checks constitutes a commitment to provide further information to WisDOT, upon request by staff. WisDOT will allow the use of joint checks when the following conditions are met:

a. The Prime Contractor must request permission to use joint checks from the DBE Office by submitting the Application to Use Joint Checks.
   (1) Request should be made when Form DT1506 or when the Request to Sublet is submitted; the request will not be considered if submitted after the DBE Subcontractor starts its work.
   (2) Approval/Permission must be granted prior to the issuance of any joint checks.
   (3) The payment schedule for the supplier must be presented to the DBE office before the first check is issued.
   (4) The joint check for supplies must be strictly for the cost of approved supplies.

b. The DBE subcontractor is responsible for furnishing and/or installing the material/work item and is not an 'extra participant' in the transaction. The DBE firm's role in the transaction cannot be limited solely to signing the check(s) to release payment to the material supplier. At a minimum, the DBE subcontractor's tasks should include the following:
   (1) The DBE subcontractor (not the prime/payor) negotiates the quantities, price, and delivery of materials.

(2) The DBE subcontractor consents to sign/release the check to the supplier by signing the Application to Use Joint Checks after establishing the conditions and documentation of payment within the subcontract terms or in a separate written document.

c. The Prime contractor/payor acts solely as a guarantor.
   (1) The Prime Contractor agrees to furnish the check used for the payment of materials/supplies under the contract.
   (2) The prime contractor/payor cannot require the subcontractor to use a specific supplier or the prime contractor's negotiated unit price.

15. Payment

Costs for conforming to this Additional Special Provision (ASP) and any associated DBE requirements are incidental to the contract.

Appendix A
Substantive Conversation Guidelines

The substantive conversation is critical to all bidders' demonstration of good faith effort to meet the DBE goal prior to bid opening. Relationship building between primes and subcontractors is crucial to DBE goal attainment. Responsible bidders seek to build rapport with potential DBE subcontractors to understand capacity, areas of expertise, and assess contracting feasibility. Bidders who compete for WisDOT contracts are specialty contractors responding to a growing and changing contract environment. Just as these specialists are responsible for care of the roads, they are likewise responsible for contributing to the health of the industry. The substantive conversation drives collaboration that will build industry health and capacity. The following is intended to provide guidance for such discussions but is not an exhaustive list. Contractors are encouraged to incorporate their existing strategies for cultivating business relationships as well.

<u>Prior to Bid Opening- this discussion should happen as early as possible (WisDOT advertisements are released 5 weeks prior to each Let)</u>

- Determine DBE subcontractor's interest in quoting
- If response indicates inexperience with quoting- offer support/assistance to the DBE in understanding the industry including fundamentals a subcontractor needs to know, required reading and/or resources.
- Assess their interest and experience in the road construction industry by asking questions such as:
  1. Have you competed for other WisDOT contracts? Ratio of competed/to wins
  2. Have you performed on any transportation industry contracts (locally or with other states)?
  3. What the largest contract you've completed?
  4. Have you worked in the industry: apprentice, journeyman, safety, inspection etc.?
  5. Does this project fit into your schedule? Are you working on any contracts now?
  6. Have you reviewed a copy of the plans? Are you comfortable performing within the scope and quantity considerations of this contract?
  7. What region do you work in? Home base?
  8. Which line items are you considering?
  9. Have you read/are you familiar with WisDOT Standard Specifications? Construction Material Manual?
  10. Do you understand where your work fits in the project schedule, project phases?

<u>Following Bid Opening- this discussion can happen at any time</u>

1. After reviewing their quote, note the following in your discussion:
   - Does the quote look complete? Irregular?
   - Are there errors in the quote? Are items very high or very low?
   - In general, does the quote look competitive?
2. Questions and Advice for the bidder to share with the potential DBE subcontractor:
   - What line items would typically be in a competitive quote for a subcontractor of their specialty?
   - How many employees and what is their role/experience/expertise in your firm?
   - Do you have resources for labor (union member, family-based, community-resourced) and capital (banking relationship, bond agent, CPA)?
   - Where have you worked: cities, states, government, commercial, residential/private sector, etc. Explain similarities or differences.
   - Refer them to reliable, trusted, industry resources that can educate or connect them to relevant resources, education/certification resources, more appropriate contract opportunities.
   - Discussion about prime contract and subcontract liability, critical path items, contract quantities, schedule risks, and potential profit/loss (for upcoming known projects or in general).
   - Discussion of bonding, insurance, and overall business risk considerations.

APPENDIX B
Sample Contractor Solicitation Letter Page 1
This sample is provided as a guide not a requirement

GFESAMPLE 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 alternatives 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 QUOTE

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 someone 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:

Clearing and Grubbing	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 alternatives are acceptable.

If there are further questions please direct them to the prime contractor's contact person at phone number.

Appendix C
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 later completion.
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. **DBE firms can:**

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 a 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.

APPENDIX D

Good Faith Effort Evaluation Measures *by categories referenced in DBE regulations*

Bidders must demonstrate that they took all necessary and reasonable steps to achieve the assigned DBE contract goal. For each contract, all bidders must submit documentation indicating the goal has been met or if falling short of meeting the assigned goal, must request a DBE Goal Waiver and document all efforts employed to secure DBE subcontractor participation on Form DT1202.

DBE staff analyze the bidder's documented good faith efforts to determine if action taken was sufficient to meet the goal. Sufficiency is measured contract-by-contract. WisDOT evaluates active and aggressive efforts, quality, quantity, scope, intensity, and appropriateness of the bidder's efforts as a scale of the principles of Good Faith outlined in 49 CFR Part 26, Appendix A. Additional emphasis is placed on the bidder's demonstration of timely submission of documentation and communication with DBE subcontractors, and business development initiatives undertaken to support DBE firm growth.

The following is a sample of good faith effort activities that are rated according to the accompanying rubric. Contractors are encouraged to identify additional activities that align with their business type(s).

- Personal, tailored solicitation to firms that specialize in work types planned or desired for subcontracting
- Follow up to initial solicitation via email or phone
- Substantive conversation including topics such as contract liability, critical path work items, schedule risks, and potential profit/loss
- SBN utilization including posting quotes
- Review and response to DBE quotes including provision of information about plans, specifications,and requirements as applicable
- Documentation requesting subcontractors support DBE goal by solicitation and inclusion of DBE subcontractor quotes
- Responsive and timely submission of organized documentation
- Analysis of number of DBE firms who do work types that you typically subcontract
- Analysis of number of DBE firms who reside in geographical areas where prime seeks work
- Analysis of firms who express interest in bidding/quoting including the number of firms who declined your solicitation
- Reference check of DBE subcontractor work or training (documentation of questions and response required)
- Number of different efforts undertaken to meet the assigned DBE goal as documented in accompanying Form DT1202
- Submission of all DBE quotes received matched with a variety of work to be performed by DBEs
- Number and names of DBE firms provided written advice, or referral to industry-specific business development resources
- Overall pattern of DBE utilization on all WisDOT contracts which may include contracting with municipalities
- Documentation of resources expended to meet assigned DBE goal (#of hours, staff titles, average pay rate, actions taken)
- Analysis of subcontractable work items to be completed by prime beyond prime contractor's 30%
- Risk analysis of work items that are typically in tied quotes that could be unbundled
- List of contract work items in smallest economically feasible units, identifying schedule impact
- Submission of a Gap Analysis identifying DBE skillset and/or industry needs
- Staff training in EEO and Civil Rights laws as documented in training logs
- Written Capacity Assessment completed with DBE firm documenting its ability to perform the work quoted
- DBE engagement efforts beyond simple solicitation that include a substantive discussion, initiated as early in the acquisition process as possible (*points added for each day prior to letting*)
- Outreach and marketing efforts with minority, women, and veteran-focused organizations at least 10 days prior to bid opening
- Active involvement in WisDOT's Business Development Program, TrANS training, facilitated networking efforts, workshops
- Customized teaching/training efforts for future opportunities with DBE subcontractor, contract specific and/or annually
- Introduction and reference provided for DBE subcontractor to a prime who has not previously contracted with the DBE firm
- Prime utilization of a DBE subcontractor the prime has not contracted with previously
- Written referral/recommendation to bond/insurance agents, manufacturer, supplier
- Documented efforts fostering DBE participation through administrative and/or technical assistance
- Evidence of negotiation with the DBE firm about current and future Let opportunities
- Recommendation of local and state services that support small business and access to opportunity: DOA, SBA, WEDC, WPI, etc.
- Advice on bonding, lines of credit, or insurance as required to complete the items quoted and contract requirements

GFE EVALUATION RUBRIC – PHASE 1

	Active & Aggressive Category	Quality Category	Quantity Category	Scope & Intensity Category	Timing Category	Business Develop't Efforts	Total=
Solicitation Documentation							
Selected Work Items Documentation							
Documentation of Project Information provided to Interested DBEs							
Documentation of Negotiation with Interested DBEs							
Documentation of Sound Reason for Rejecting DBEs							
Documentation of Assistance to Interested DBEs- bonding, credit, insurance, equipment, supplies/materials							
Documentation of Outreach to Minority, Women, and Community organizations and other DBE Business Development Support							
Documentation of other GFE activities							
Overall Total=							

GFE EVALUATION RATING LEGEND – PHASE 1

ACTIVE & AGGRESSIVE: Demonstrated through engaged and assertive activity
QUALITY: Demonstrated through essential character of conscientious and serious activity
QUANTITY: Demonstrated through a measurable number of activities
SCOPE & INTENSITY: Demonstrated through a rigorous approach to an appropriate and purposeful range of activities
TIMING: Demonstrated through engagement efforts beyond simple solicitation, initiated early in the process
BUSINESS DEVELOPMENT INITIATIVES: Demonstrated by efforts to support business growth and health of DBEs

Rating Scale

- **Each qualifying activity is worth 5 points per Category**
- **Documented efforts must receive 55 points or more to qualify for Phase 2 GFE evaluation**
  - **Pro Forma efforts= 0-50 points**
    Perfunctory effort characterized by routine or superficial activities
  - **Bona Fide= 55+ points**
    Genuine effort characterized by sincere and earnest activities

GFE EVALUATION – PHASE 2

DBE Office completes:

- Review of quote comparisons submitted by Prime
- Bid analysis to confirm is any bid submitted met the DBE goal
- Team review of combined efforts documented in Phase 1 and 2 by apparent low bidder

APPENDIX E
Good Faith Effort Best Practices

This list is not a set of requirements; it is a list of potential strategies

Primes

- Ø Prime contractor open houses inviting DBE firms to see the bid “war room” or providing technical assistance.
- Ø Participate in speed networking and mosaic exercises as arranged by DBE office.
- Ø Host information sessions not directly associated with a bid letting.
- Ø Participate in a formal mentor protégé or joint venture with a DBE firm.
- Ø Participate in WisDOT advisory committees i.e. TRANSAC, or Mega Project committee meetings.
- Ø Facilitate a small group DBE ‘training session’ clarifying how your firm prepares for bid letting, evaluates subcontractors, preferred qualifications, and communication methods.
- Ø Encourage subcontractors to solicit and highlight DBE participation in their quotes to you.
- Ø Quality of communication, not quantity creates the best results. Contractors should be thorough in communicating with DBE firms before the bid and provide any assistance requested to assure best possible bid.

DBE

- Ø DBE firms should contact primes as soon as possible with questions regarding their quotes or bid; seven days prior is optimal.
- Ø Continually check for contract addendums on the HCCI website through the Thursday prior to letting to stay abreast of changes.
- Ø Review the status of contracts on the HCCI website reviewing the ‘apparent low bidder’ list and bid tabs at a minimum.
- Ø 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.
- Ø Participate in DBE office assessment programs.
- Ø Participate on advisory and mega-project committees.
- Ø Sign up to receive the DBE Contracting Update.
- Ø Consider membership in relevant industry or contractor organizations.
- Ø 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 F
Good Faith Effort Evaluation Guidance
Appendix A of 49 CFR Part 26

I. When, as a recipient, you establish a contract goal on a DOT-assisted contract for procuring construction, equipment, services, or any other purpose, a bidder must, in order to be responsible and/or responsive, make sufficient 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, you have the responsibility 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, based on the regulations and the guidance in this Appendix.

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. Determinations should not be made using quantitative formulas.

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. (1) Conducing market research to identify small business contractors and suppliers and soliciting through all reasonable and available means the interest of all certified DBEs that have the capability to perform the work of the contract. This may include attendance at pre-bid and business matchmaking meetings and events, advertising and/or written notices, posting of Notices of Sources Sought and/or Requests for Proposals, written notices or emails to all DBEs listed in the State's directory of transportation firms that specialize in the areas of work desired (as noted in the DBE directory) and which are located in the area or surrounding areas of the project.

(2) The bidder should solicit this interest as early in the acquisition process as practicable to allow the DBEs to respond to the solicitation and submit a timely offer for the subcontract. The bidder should 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 (for example, smaller tasks or quantities) to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces. This may include, where possible, establishing flexible timeframes for performance and delivery schedules in a manner that encourages and facilitates DBE participation.

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 with their offer for the subcontract.

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. (1) 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 status) are not legitimate causes for the rejection or non-solicitation of bids in the contractor's efforts to meet the project goal. Another practice considered an insufficient good faith effort is the rejection of the DBE because its quotation for the work was not the lowest received. However, nothing in this paragraph shall be construed to require the bidder or prime contractor to accept unreasonable quotes in order to satisfy contract goals.

(2) A prime contractor's inability to find a replacement DBE at the original price is not alone sufficient to support a finding that good faith efforts have been made to replace the original DBE. The fact that the contractor has the ability and/or desire to perform the contract work with its own forces does not relieve the contractor of the obligation to make good faith efforts to find a replacement DBE, and it is not a sound basis for rejecting a prospective replacement DBE's reasonable quote.

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, it is essential to scrutinize its documented efforts. At a minimum, you must review the performance of other bidders in meeting the contract goal. 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 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. As provided in §26.53(b)(2)((vi), you must also require the contractor to submit copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract to review whether DBE prices were substantially higher; and contact the DBEs listed on a contractor's solicitation to inquire as to whether they were contacted by the prime. Pro forma mailings to DBEs requesting bids are not alone sufficient to satisfy good faith efforts under the rule.

VI. A promise to use DBEs after contract award is not considered to be responsive to the contract solicitation or to constitute good faith efforts.

[79 FR 59600, Oct. 2, 2014]

APPENDIX G
(SAMPLE) Forms DT1506 and DT1202

COMMITMENT TO SUBCONTRACT TO DBE

Wisconsin Department of Transportation

DT1506 6/2020 s.84.06(2) Wis. Stats.

Project(s):

Prime Contractor:

County:

Letting Date:

This contract requires that a specified percentage of the work be subcontracted to a disadvantaged business enterprise and that this information be submitted as described in ASP-3. Completion of the following information indicates your intent in the fulfillment of these contract requirements.

Total Value of Prime Contract:

DBE Contract Goal %:

DBE Contract Goal $: $ -

Goal met

This form must be completed and returned for THIS contract. See reverse side for instructions.

A	V	NAME OF DBE SUBCONTRACTOR	TYPE OF WORK	SUBCONTRACT $ VALUE	Government Use Only Adjusted Amounts
		SUBTOTAL DBE $ VALUE	A ($) $ -	TOTAL % #DIV/0!	
			V ($) $ -	TOTAL % #DIV/0!	

A	V	NAME OF DBE SUPPLIER AND/OR MANUFACTURER (see #3 on Instructions)	TYPE OF MATERIAL	SUBCONTRACT $ VALUE	Government Use Only Adjusted Amounts
		SUBTOTAL DBE $ VALUE	A ($) $ -	TOTAL % #DIV/0!	
			V ($) $ -	TOTAL % #DIV/0!	

A	V	NAME OF DBE TRUCKING FIRM	MATERIAL HAULED	EST. # OF TON/C.Y.	EST. # OF TRUCKS REQ'D	$ VALUE	Government Use Only Adjusted Amounts
					O= L=		
					O= L=		
					O= L=		
					O= L=		
					O= L=		
			A ($)	$ -	TOTAL %	#DIV/0!	
		SUBTOTAL DBE $ VALUE	V ($)	$ -	TOTAL %	#DIV/0!	
			A ($)	$ -	TOTAL %	#DIV/0!	
		GRAND TOTAL DBE $ VALUE	V ($)	$ -	TOTAL %	#DIV/0!	
			T =	$ -	TOTAL %	#DIV/0!	

I certify that arrangements have been made for the foregoing work with the listed DBE Contractors. I further understand that any willful falsification, fraudulent statement or misrepresentation will result in appropriate sanctions, which may include debarment and/or prosecution under applicable State (Trans 504) and Federal laws.

O = Owned Trucks Used on Project
L = Leased Trucks Used on Project

A = Assigned (DBE Conscious)
V = Voluntary (DBE Neutral)

Government Use Only Approved Amounts

A $ %

V $ %

Total $ %

Signature:

Date:

DBE goal waiver granted: Yes No

X

(Authorized Agent)

Date

Preferred submission method: DBE_Alert@dot.wi.gov
Or:
Mail to: Wisconsin Department of Transportation
DBE Programs Office, 5th Floor
PO Box 7986
Madison,WI 53707-7986

Proposal Number :

Instructions For Completing Commitment To Subcontract To DBE Form:

1 In accordance with the DBE Regulations (49 CFR part 26), WisDOT is tracking Assigned Goals for DBE's (DBE Conscious) and Voluntary Usage of DBE Firms (DBE Neutral). DBE participation reported on this form will be used to periodically adjust (DBE Conscious and DBE Neutral) components of WisDOT's overall annual DBE goal.

2 For each DBE firm listed on this form, place an "x" in the appropriate column to indicate whether it will be used to meet the Assigned Goal (A) and/or whether it is used on a Voluntary basis (V). Any achievement above assigned goals should be reported as a voluntary achievement. If you indicate that a firm will be used to meet both assigned and voluntary goals, indicate the dollar amount attributable to assigned goals and the amount attributable to the voluntary goal. Our objective is to capture all DBE achievement you generate. The following is an example:

a. The total contract amount is $100,000 and the DBE goal is 10% or $10,000 in DBE participation

b. If $10,000 is the subcontract dollar value to ADBE Landscaping Co. then $10,000 would be Assigned (DBE Conscious) and you would place an "x" in the "A" column

c. If $15,000 is the subcontract dollar value to ADBE Landscaping Co. then $10,000 would be Assigned (DBE Conscious) and you would place an "x" in the "A" column and ADBE Landscaping Co. would be listed on the next line for $5,000 which would be Voluntary (DBE Neutral) and an "x" would be placed in the "V" column

3 The department will give full credit toward the DBE goal if the DBE is a manufacturer of their materials or supplies. The department will give 60 percent credit or brokerage fee set by industry's standard toward the DBE goal if the DBE is merely a supplier of these materials or supplies. Drop shipment by a supplier will earn a 10 percent DBE credit. It is the Prime Contractor's responsibility to use the Bidder's List or UCP Directory to find out if the DBE is considered a supplier or a manufacturer before listing them on Commitment to Subcontract to DBE form. WisDOT will apply the appropriate credit when approving the form.

4 After completing the form, if it does not indicate that the DBE goal has been met or exceeded, please complete and supply the necessary documentation on the Documentation of Good Faith Effort form (DT1202)

Instructions For Completing Attachment A Form:

5 Section 26.53 (49 CFR part 26) requires written confirmation of participation from each DBE firm to be used on the contract. Please submit one copy of a completed Attachment A, Confirmation of Participation form, for each DBE firm to be used on this contract. Each form must be signed by the Prime Contractor, the hiring contractor (if applicable) and the DBE Firm specified on the form.

6 DBE crediting for the trucking industry is achieved in the following manner:

a. A minimum of one truck owned by the DBE must be used on the contract.

b. Full DBE credit is given for owned trucks and trucks leased from another DBE.

c. Trucks leased from non-DBE firms will be given DBE credit of 10% of the subcontract value.

d. All trucks used for credit must be listed and approved on the DBE firm's Schedule of Owned/Leased Vehicles for DBE Credit and/or a WisDOT approved trucking utilization plan.

It is the Prime Contractor's and the DBE firm's responsibility to ensure that utilization of trucks and the DBE credit earned is in accordance with the above and will yield the subcontract dollar value listed on the Commitment to Subcontract to DBE form.

Please submit documents to: DBE_Alert@dot.wi.gov

Identify Project#, Proposal#, Let date, Business Name, DT1506 and/or Attachment A in the **email subject line.**

If you have questions about filling out these forms, please contact the Civil Rights and Compliance Office at (608) 266-0503.

CONFIRMATION OF PARTICIPATION

Project I.D.:		Proposal Number:	
Letting Date:		Total $ Value of Prime Contract:	

Name of DBE Firm Participating in this Contract:
Name of the Prime/Subcontractor who hired the DBE Firm: *(list all names of tiers if more than one)*
Type of Work or Type of Material Supplied:
Total Subcontract Value:

FOR PRIME CONTRACTORS ONLY: I certify that I made arrangements with the participating DBE firm to perform the type of work listed or supply the material indicated above for the subcontract value listed above.	Prime Contractor Representative's Signature Prime Contractor Representative's Name (Print Name) Prime Contractor (Print Company Name) Date
FOR PARTICIPATING DBE FIRMS ONLY: I certify that I made arrangements with the Prime Contractor or the Hiring Contractor to perform the type of work or supply the material indicated above for the subcontract value listed above. **FOR DBE TRUCKING FIRMS ONLY:** I certify that I will utilize, for DBE credit, only trucks listed on my WisDOT approved Schedule of Owned/Leased Vehicles for DBE Credit form and I will be utilizing the number of trucks and material hauled as listed below.	Participating DBE Firm Representative's Signature Participating DBE Firm Representative's Name (Print Name) Participating DBE Firm (Print Company Name) Date

# Owned Trucks	# Leased Trucks	# Estimated Tons/C.Y.	Material(s) Hauled

Official Form DT1506 can be found here: www.wisconsindot.gov/DBEcontracting

DOCUMENTATION OF GOOD FAITH EFFORT

Wisconsin Department of Transportation
DT1202 3/2020

Project ID	Proposal No.	Letting
* * * * *	* * * * *	* * * * *
Prime Contractor		County
* * * * *		* * * * *
Person Submitting Document		Telephone Number
* * * * *		* * * * *
Address		Email Address
* * * * *		* * * * *

All bidders must undertake necessary and reasonable steps to achieve the assigned DBE contract goal per federal regulatory guidance at 49 CFR Part 26. Bidders use this form to document all efforts employed to meet the assigned goal as a record of contractor good faith efforts (GFE). Refer to ASP3 or 49 CFR Part 26 for guidance on actions that demonstrate good faith effort.

It is critical to list all efforts, attach documentation, and follow the instructions to complete this submission. Documentation of good faith effort includes copies of each DBE and non-DBE subcontractor quote submitted to the bidder for the same line items. Utilize the sample documentation logs to document and organize efforts.

Submit good faith effort documentation per ASP-3 guidelines.

Instructions: Provide a narrative description of all activities pursued to demonstrate good faith efforts, any corresponding documentation, and applicable explanation on separate pages. Include the following items, organized in the order listed below.

1. **Solicitation Documentation:**
   - a. **Purpose:** To identify all reasonable and available activities the bidder performed to solicit the interest of all certified DBEs who have the capacity and ability to perform work on the project. All solicitation efforts should begin as early as possible to ensure DBEs have ample time to respond and ask questions.
   - b. **Action:** Identify and list all activities engaged in to solicit DBEs using all reasonable and available means such as written notice and follow-up communications; substantive conversations; pre-bid meetings; networking events; market research; advertising.
2. **Selected Work Items Documentation:**
   - a. **Purpose:** To ensure that all work items are broken out into economically feasible units to facilitate DBE participation. This must occur even when you prefer to perform the work yourself.
   - b. **Action:** Identify economically feasible work units to be performed by DBEs to include activities such as: list of work items to be performed; breaking up of large work items into smaller tasks or quantities; flexible time frames for performance and delivery schedules.
3. **Documentation of Project Information provided to Interested DBEs:**
   - a. **Purpose:** To provide interested DBEs with adequate information about the plans, specifications, and any other contractual requirements in a timely manner to assist DBEs in response to solicitation.
   - b. **Action:** Provide DBEs access to plans, specifications, and other contract requirements. Early solicitation allows ample opportunity to provide project information, links to Let advertisements, and substantive engagement with DBEs.

4. **Documentation of Negotiation with Interested DBEs:**
   a. **Purpose:** To ensure that negotiations with interested DBEs were made in good faith providing evidence as to why agreements could not be reached for DBEs to perform work.

   b. **Action:** Provide sufficient evidence to demonstrate that good faith negotiations took place. Merely sending out solicitations requesting bids from DBEs does not constitute sufficient good faith efforts. A bidder using good business judgment considers a number of factors in negotiating with all subcontractors, and the firm's price and capabilities in addition to contract goals are taken 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 failing to meet the DBE goal as long as costs are reasonable. (see 49 CFR Part 26 Appendix A)

5. **Documentation of Sound Reason for Rejecting DBEs:**
   a. **Purpose:** To ensure that bidders avoid rejecting DBEs as unqualified without sound reasons. Reasons for rejection must be based on thorough investigation of DBE capabilities.

   b. **Action:** Provide sufficient evidence to demonstrate that DBE was rejected for sound reasons such as past performance, relevant business experience and stability, safety record, business ethic and integrity, technical capacity, other tangible factors.

6. **Documentation of Assistance to Interested DBEs - Bonding, Credit, Insurance, Equipment, Supplies/Materials:**
   a. **Purpose:** To assist interested DBEs in obtaining bonds, lines of credit, insurance, equipment, supplies, materials, and other assistance or services.

   b. **Action:** Assist interested DBEs in obtaining bonding, lines of credit or insurance, and provide technical assistance or information related to plans, specifications, and project requirements. Assist DBEs in obtaining equipment, supplies, materials or other services related to meeting project requirements (excluding supplies or equipment the DBE purchases from the prime).

7. **Documentation of outreach to Minority, Women, and Community Organizations and other DBE Business Development Support:**
   a. **Purpose:** To effectively use the services of minority, women, and community organizations as well as contractors' groups, local, state, and federal business assistance offices and organization that provide assistance in recruiting and supporting DBEs, as well as participation in activities that support DBE business development.

   b. **Action:** Contact organizations and agencies for assistance in contacting, recruiting, and providing support to DBE subcontractors, suppliers, manufacturers, and truckers at least 14 days before bid opening. Participate in or host activities such as networking events, mentor-protégé programs, small business development workshops, and others consistent with DBE support.

Return to:
Wisconsin Department of Transportation
DBE Program Office
PO Box 7965
Madison, WI 53707-7965
DBE_Alert@dot.wi.gov

I certify that I have utilized comprehensive good faith efforts to solicit and utilize DBE firms to meet the DBE participation requirements of this contract proposal, as demonstrated by my responses and as specified in Additional Special Provision 3 (ASP-3).

I certify that the information given in the Documentation of Good Faith Efforts is true and correct to the best of my knowledge and belief.

I further understand that any willful falsification, fraudulent statement, or misrepresentation will result in appropriate sanctions, which may involve debarment and/or prosecution under applicable state (Trans 504) and Federal laws.

		(Bidder/Authorized Representative Signature)
		*****
		(Print Name)
		*****
		(Title)

Good Faith Effort -- Sample Documentation Logs

The sample logs below are provided as guides rather than exhaustive list. See ASP3, Appendix A for additional examples of demonstrable good faith efforts. Attach documentation for each activity listed.

Acceptable forms of documentation include copies of solicitations sent to DBEs, notes from substantive conversations and negotiations with DBEs, copies of advertisements placed, email communications, all quotes received from DBEs and from all subcontractors who were considered alongside DBE quotes, proof of attendance at applicable networking events; flyers for events or workshops for DBEs offered by the prime, and other physical records of good faith efforts activities.

SOLICITATION LOG

Date	Activity	Name of DBE Solicited	Follow-up
4/1/2020	Sent May Let solicitation	Winterland Electric	Spoke with Mark Winterland on 4/15/20 to ask if he would quote

SELECTED WORK ITEMS SOLICITED LOG

Work Type	DBE Firm	Contact Person	Date	Contact Mode
Pavement Marking	ABC Marking	Leslie Lynch	4/1/2020	Email; phone
	#1 Marking Co.	Mark Smart	4/1/2020	Email; left VM
Electrical	Winterland Electric	Tabitha Tinker	4/3/2020	Email, left VM
	Superstar Wiring	Jose Huascar	4/3/2020	Email; phone

INFORMATION PROVIDED LOG

Request Date	DBE Firm	Information Requested & Provided	Response Date
4/1/2020	Winterland Electric	Requested info on electrical requirements; provided plan and link to specs	4/3/2020
4/21/2020	Absolute Construction	Wanted to know how and when supplies are paid for by WisDOT; referred to spec that covers stockpiling	4/21/2020

NEGOTIATIONS LOG

Date	DBE Firm	Contact Name	Work Type	Quotes Rec'd?	Considered for project?	If not selected, why?
4/12/2020	ABC Landscape	John Dean	Erosion Control	Yes	No	Cannot perform all items
4/17/2020	Wild Ferns	Sandy Lynn	Erosion Control	Yes	Yes	
4/20/2020	#1 Marking	Mark Smart	Electrical	Yes	Yes	

ASSISTANCE LOG

Date	DBE Firm	Contact Person	Assistance Provided
4/1/2020	ABC Sawing	Jackie Swiggle	Informed DBE on how to obtain bonding
4/17/2020	Supreme Construction	Winston Walters	Provided contact for wholesale supply purchase

OUTREACH & BUSINESS DEVELOPMENT LOG

Date	Agency/Organization Contacted	Contact Person	Assistance Requested
4/1/2020	Women in Construction	LaTonya Klein	Contact information for woman-owned suppliers
4/28/2020	WBIC	Sam Smith	Asked for information to provide to DBE regarding financing programs through WBIC

Official Form DT1202 can be found here: www.wisconsindot.gov/DBEcontracting

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
209.1100	Backfill Granular Grade 1	CY	0.23
209.1500	Backfill Granular Grade 1	Ton	0.115
209.2100	Backfill Granular Grade 2	CY	0.23
209.2500	Backfill Granular Grade 2	Ton	0.115
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

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 $1.15 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:

102.1 Prequalifying Bidders

Replace paragraph two with the following effective with the October 2020 letting:

(2) Furnish a dated prequalification statement on the department's form at least 10 business days before the time set for the letting to close.

102.6 Preparing the Proposal

Replace the entire text with the following effective with the October 2020 letting:

102.6.1 General

(1) Submit completed proposals on the department's bidding proposal described in 102.2. Submit legible information only. Write everything in ink, by typewriter, or by computer-controlled printer. Provide all dollar amounts in dollars and cents, in numerals. Attach all addenda to the submitted proposal.

(2) Properly execute the proposal. Place the required signatures, in ink, in the space provided on the bidding proposal as indicated below:

ENTITY SUBMITTING PROPOSAL	REQUIRED SIGNATURE
Individual	The individual or a duly authorized agent.
Partnership	A partner or a duly authorized agent.
Joint venture	A member or a duly authorized agent of at least one of the joint venture firms.
Corporation	An authorized officer or duly authorized agent of the corporation. Also show the name of the state chartering that corporation and affix the corporate seal.
Limited liability company	A manager, a member, or a duly authorized agent.

(3) Instead of using the schedule of items provided on the department's bidding proposal, the bidder may submit a substitute schedule with the proposal. Use a format for the substitute schedule conforming to the department’s guidelines for approval of a bidder-generated schedule of items. Obtain the department’s written approval before using a substitute schedule.

(4) Provide a unit price for each bid item listed in the schedule of items. Calculate and show, in the bid amount column, the products of the respective unit prices and quantities. For a lump sum bid item, show the same price in the unit price column and in the bid amount column pertaining to that bid item. Show the total bid obtained by adding the values entered in the bid amount column for the listed bid items.

(5) If a unit price or lump sum bid already entered in the proposal needs to be altered, cross out the entered unit price or lump sum bid with ink or typewriter and enter the new price above or below and initial it in ink.

(6) A change that the bidder makes in the proposal is not an alteration if the bidder makes that change as directed in a specific instruction contained in an addendum.

102.6.2 Disadvantaged Business Enterprise (DBE) Commitment

(1) Before the letting is closed, submit the following documentation for proposals with a DBE goal:

1. Commitment to subcontract to DBE on department form DT1506.
2. Attachment A for each subcontractor listed on the DT1506.
3. If the DBE goal is not attained, certificate of good faith efforts on department form DT1202.

(2) Within 24 hours after the letting is closed, email all supplemental documentation for the DT1202 verifying efforts made to attain the DBE goal to DBE_Alert@dot.wi.gov.

102.7.3 Department Will Reject

Replace paragraph one with the following effective with the October 2020 letting:

(1) Proposals are irregular and the department will reject and will not post them if the bidder:

1. Does not furnish the required proposal guaranty in the proper form and amount as specified in 102.8.
2. Does not submit a unit price for each bid item listed, except for lump sum bid items where the bidder may show the price in the bid amount column for that bid item.

3. Includes conditions or qualifications not provided for in the department-supplied bidding proposal.
4. Submits a bid on a bidding proposal issued to a different bidder without obtaining departmental authorization to do so.
5. Submits a bid that contains unauthorized revisions in the name of the party to whom the bidding proposal was issued.
6. Submits a schedule of items with illegibly printed bid item numbers, descriptions, or unit prices.
7. Submits a schedule of items for the wrong contract.
8. Submits a bidder-generated schedule of items with an incorrect bid item number and incorrect description for a single bid item.
9. Omits a bid item or bid items on a bidder-generated schedule of items.
10. Submits a materially unbalanced bid.
11. Does not sign the proposal.
12. Does not submit the DBE forms and required supplemental documentation of the good faith efforts as specified in 102.6.2.

102.12 Public Opening of Proposals

Replace paragraph one with the following effective with the October 2020 letting:

(1) The letting will close at the time and place indicated in the notice to contractors. The department will publicly open and post the total bid for each proposal on the Bid Express web site beginning at noon on the day after the letting is closed except as specified in 102.7.3 and 102.8. If a proposal has no total bid shown, the department will not post the bid. After verification for accuracy under 103.1, the department will post bid totals on the HCCI web site.

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

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103.1 Consideration of Proposals

Replace paragraph one with the following effective with the October 2020 letting:

(1) Following the public opening of the proposals received, the department will compare them based on the summation of the products of the quantities of work listed and the contract unit prices offered. In case of discrepancies, errors, or omissions, the department will make corrections as specified in 102.7.1. In awarding contracts, the department, in addition to considering the amounts stated in the proposals, may consider one or more of the following:

1. The responsibility of the various bidders as determined from a study of the data required under 102.1.
2. The responsiveness of the bid as determined under 102.6.
3. Information from other investigations that the department may make.

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.

NOTE: CRCS Prime Contractor payment is currently not automated and will need to be manually loaded into the Civil Rights Compliance System. Copies of prime contractor payments received (check or ACH) will have to be forwarded to paul.ndon@dot.wi.gov within 5 days of payment receipt to be logged manually.

***Additionally, for information on Subcontractor Sublet assignments, Subcontractor Payments and Payment Tracking, please refer to the CRCS Payment and Sublets manual at:

https://wisconsindot.gov/Documents/doing-bus/civil-rights/labornwage/crcs-payments-sublets-manual.pdf

Effective January 2019 Letting ASP 9

ADDITIONAL SPECIAL PROVISION 9
Electronic Certified Payroll or Labor Data Submittal

(1) Use the department's Civil Rights Compliance System (CRCS) to electronically submit certified payroll reports for contracts with federal funds and labor data for contracts with state funds only. Details are available online through the department's highway construction contractor information (HCCI) site on the Labor, Wages, and EEO Information page at:

https://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/default.aspx

(2) Ensure that all tiers of subcontractors, including all trucking firms, either submit their weekly certified payroll reports (contracts with federal funds) or labor data (contracts with state funds only) electronically through CRCS. These payrolls or labor data 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 their submittals. The department will provide training either in a classroom setting at one of our regional offices or by telephone. Contact Paul Ndon at (414) 438-4584 to schedule the training.

(4) The department will reject all paper submittals 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/labor data from their computer system into CRCS should have their payroll coordinator contact Paul Ndon at paul.ndon@dot.wi.gov. Not every contractor's payroll system is capable of producing export files. For details, see Section 4.8 CPR Auto Submit (Data Mapping) on pages 49-50; 66-71 of the CRCS Payroll Manual at:

https://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.

Non-discrimination Provisions

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. Compliance with Regulations: The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. Non-discrimination: The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

3. Solicitations for Subcontracts, Including Procurements of Materials and Equipment: In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.

4. Information and Reports: The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the Federal Highway Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

5. Sanctions for Noncompliance: In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:

a. Withholding payments to the contractor under the contract until the contractor complies; and/or
b. Cancelling, terminating, or suspending a contract, in whole or in part.

6. Incorporation of Provisions: The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

Pertinent Non-Discrimination Authorities:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et seq.), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);

- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures Non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of Limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

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.

https://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:

https://wisconsindot.gov/hcciDocs/contracting-info/ws4567.doc

Effective February 2016 letting

Cargo Preference Act Requirement

All Federal-aid projects shall comply with 46 CFR 381.7 (a) – (b) as follows:

(a) *Agreement Clauses.* "Use of United States-flag vessels:"

(1) Pursuant to Pub. L. 664 (43 U.S.C. 1241(b)) at least 50 percent of any equipment, materials or commodities procured, contracted for or otherwise obtained with funds granted, guaranteed, loaned, or advanced by the U.S. Government under this agreement, and which may be transported by ocean vessel, shall be transported on privately owned United States-flag commercial vessels, if available.

(2) Within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (a)(1) of this section shall be furnished to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590."

(b) *Contractor and Subcontractor Clauses.* "Use of United States-flag vessels: The contractor agrees—"

(1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

(2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b) (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

(3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.

Effective with December 2017 Letting

WISCONSIN DEPARTMENT OF TRANSPORTATION
DIVISION OF TRANSPORTATION AND SYSTEM DEVELOPMENT

SUPPLEMENTAL REQUIRED CONTRACT PROVISIONS
FOR PROJECTS WITH FEDERAL AID

I. PREVAILING WAGE RATES

The attached U.S. Department of Labor (Davis-Bacon Minimum Wage Rates) furnishes the minimum prevailing wage rates pursuant to the Davis-Bacon and Related Acts. The wage rates shown are the minimum rates required by the contract to be paid during its life, however this is 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 will be allowed or authorized on account of the payment of wage rates in excess of those listed herein.

II. COVERAGE OF TRUCK DRIVERS

Truck drivers are covered by Davis-Bacon Minimum Wage Rates in the following circumstances:

- Drivers of a contractor or subcontractor for time spent working on the site of the work.
- Drivers of a contractor or subcontractor for time spent loading and/or unloading materials and supplies on the site of the work, if such time is not de minimis. https://www.dol.gov/whd/FOH/FOH_Ch15.pdf
- Truck drivers transporting materials or supplies between a facility that is deemed part of the site of the work and the actual construction site.
- Truck drivers transporting portions of the building or work between a site established specifically for the performance of the contract where a significant portion of such building or work is constructed and the physical place where the building or work called for in the contract will remain.

Truck drivers are not covered by Davis-Bacon Minimum Wage Rates in the following circumstances:

- Material delivery truck drivers while off the site of the work.
- Drivers of a contractor or subcontractor traveling between a Davis-Bacon job and a commercial supply facility while they are off the site of the work."
- Truck drivers whose time spent on the site of the work is de minimis, such as only a few minutes at a time merely to pick up or drop off materials or supplies.

Details are available online at:
https://www.dol.gov/whd/recovery/pwrb/Tab9.pdf
https://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/trckng.aspx

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 and accessible place at the site of work:

a. A copy of the contractor's Equal Employment Opportunity Policy.

All required documents shall be posted by the first day of work and be accurate and complete. Postings must be readable, in an area where they will be noticed, and maintained until the last day of work.

IV. RESOURCES

Required information regarding compliance with federal provisions is found in the following resources:

- FHWA-1273 included in this contract
- U.S. Department of Labor Prevailing Wage Resource Book
- U.S. Department of Labor Field Operations Handbook
- U.S. Code of Federal Regulations
- Any applicable law, Act, or Executive Order enacted by the federal government at the time of the letting of this contract

"General Decision Number: WI20200010 08/28/2020

Superseded General Decision Number: WI20190010

State: Wisconsin

Construction Type: Highway

Counties: Wisconsin Statewide.

HIGHWAY, AIRPORT RUNWAY & TAXIWAY CONSTRUCTION PROJECTS (does not include bridges over navigable waters; tunnels; buildings in highway rest areas; and railroad construction)

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2020
1	01/24/2020
2	02/28/2020
3	03/06/2020
4	06/05/2020
5	06/12/2020
6	06/19/2020
7	07/17/2020
8	08/28/2020

BRWI0001-002 06/03/2019

CRAWFORD, JACKSON, JUNEAU, LA CROSSE, MONROE, TREMPEALEAU, AND VERNON COUNTIES

	Rates	Fringes
BRICKLAYER	$ 33.80	24.28

BRWI0002-002 06/01/2019

ASHLAND, BAYFIELD, DOUGLAS, AND IRON COUNTIES

	Rates	Fringes
BRICKLAYER	$ 39.94	23.30

BRWI0002-005 06/01/2019

ADAMS, ASHLAND, BARRON, BROWN, BURNETT, CALUMET, CHIPPEWA, CLARK, COLUMBIA, DODGE, DOOR, DUNN, FLORENCE, FOND DU LAC, FOREST, GREEN LAKE, IRON, JEFFERSON, KEWAUNEE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE, MARQUETTE, MENOMINEE, OCONTO, ONEIDA, OUTAGAMIE, POLK, PORTAGE, RUSK, ST CROIX, SAUK, SHAWANO, SHEBOYGAN, TAYLOR, VILAS, WALWORTH, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 35.51	23.37

BRWI0003-002 06/03/2019

BROWN, DOOR, FLORENCE, KEWAUNEE, MARINETTE, AND OCONTO COUNTIES

	Rates	Fringes
BRICKLAYER	$ 34.18	23.90

BRWI0004-002 06/01/2019

KENOSHA, RACINE, AND WALWORTH COUNTIES

	Rates	Fringes
BRICKLAYER	$ 38.43	25.10

BRWI0006-002 06/01/2019

ADAMS, CLARK, FOREST, LANGLADE, LINCOLN, MARATHON, MENOMINEE, ONEIDA, PORTAGE, PRICE, TAYLOR, VILAS AND WOOD COUNTIES

	Rates	Fringes
BRICKLAYER	$ 35.06	23.02

BRWI0007-002 06/03/2019

GREEN, LAFAYETTE, AND ROCK COUNTIES

	Rates	Fringes
BRICKLAYER	$ 35.57	24.22

BRWI0008-002 06/01/2019

MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
BRICKLAYER	$ 38.93	24.22

BRWI0011-002 06/03/2019

CALUMET, FOND DU LAC, MANITOWOC, AND SHEBOYGAN COUNTIES

	Rates	Fringes
BRICKLAYER	$ 34.18	23.90

BRWI0019-002 06/03/2019

BARRON, BUFFALO, BURNETT, CHIPPEWA, DUNN, EAU CLAIRE, PEPIN, PIERCE, POLK, RUSK, ST. CROIX, SAWYER AND WASHBURN COUNTIES

	Rates	Fringes
BRICKLAYER	$ 33.40	24.68

BRWI0034-002 06/03/2019

COLUMBIA AND SAUK COUNTIES

	Rates	Fringes

BRICKLAYER.....$ 35.56 24.23

CARP0087-001 05/01/2016

BURNETT (W. of Hwy 48), PIERCE (W. of Hwy 29), POLK (W. of Hwys 35, 48 & 65), AND ST. CROIX (W. of Hwy 65) COUNTIES

	Rates	Fringes
Carpenter & Piledrivermen	$ 36.85	18.39

CARP0252-002 06/01/2016

ADAMS, BARRON, BAYFIELD (Eastern 2/3), BROWN, BUFFALO, BURNETT (E. of Hwy 48), CALUMET, CHIPPEWA, CLARK, COLUMBIA, CRAWFORD, DANE, DODGE, DOOR, DUNN, EAU CLAIRE, FLORENCE (except area bordering Michigan State Line), FOND DU LAC, FOREST, GRANT, GREEN, GREEN LAKE, IOWA, IRON, JACKSON, JEFFERSON, JUNEAU, KEWAUNEE, LA CROSSE, LAFAYETTE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE (except N.E. corner), MARQUETTE, MENOMINEE, MONROE, OCONTO, ONEIDA, OUTAGAMIE, PEPIN, PIERCE (E. of Hwys 29 & 65), POLK (E. of Hwys 35, 48 & 65), PORTAGE, PRICE, RICHLAND, ROCK, RUSK, SAUK, SAWYER, SHAWANO, SHEBOYGAN, ST CROIX (E. of Hwy 65), TAYLOR, TREMPEALEAU, VERNON, VILAS, WALWORTH, WASHBURN, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
CARPENTER		
CARPENTER	$ 33.56	18.00
MILLWRIGHT	$ 35.08	18.35
PILEDRIVER	$ 34.12	18.00

CARP0252-010 06/01/2016

ASHLAND COUNTY

	Rates	Fringes
Carpenters		
Carpenter	$ 33.56	18.00
Millwright	$ 35.08	18.35
Pile Driver	$ 34.12	18.00

CARP0264-003 06/01/2016

KENOSHA, MILWAUKEE, OZAUKEE, RACINE, WAUKESHA, AND WASHINGTON

COUNTIES

	Rates	Fringes
CARPENTER	$ 35.78	22.11

CARP0361-004 05/01/2018

BAYFIELD (West of Hwy 63) AND DOUGLAS COUNTIES

	Rates	Fringes
CARPENTER	$ 36.15	20.43

CARP2337-001 06/01/2016

ZONE A: MILWAUKEE, OZAUKEE, WAUKESHA AND WASHINGTON

ZONE B: KENOSHA & RACINE

	Rates	Fringes
PILEDRIVERMAN		
Zone A	$ 31.03	22.69
Zone B	$ 31.03	22.69

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* ELEC0014-002 06/14/2020

ASHLAND, BARRON, BAYFIELD, BUFFALO, BURNETT, CHIPPEWA, CLARK (except Maryville, Colby, Unity, Sherman, Fremont, Lynn & 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

	Rates	Fringes
Electricians:	$ 35.98	20.98

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* ELEC0014-007 07/05/2020

REMAINING COUNTIES

	Rates	Fringes
Teledata System Installer		
Installer/Technician	$ 27.75	15.14

Low voltage construction, installation, maintenance and removal of teledata facilities (voice, data, and video) including outside plant, telephone and data inside wire, interconnect, terminal equipment, central offices, PABX, fiber optic cable and equipment, micro waves, V-SAT, bypass, CATV, WAN (wide area networks), LAN (local area networks), and ISDN (integrated systems digital network).

ELEC0127-002 06/01/2020

KENOSHA COUNTY

	Rates	Fringes
Electricians:	$ 41.62	30%+12.70

ELEC0158-002 06/03/2019

BROWN, DOOR, KEWAUNEE, MANITOWOC (except Schleswig), MARINETTE(Wausuakee and area South thereof), OCONTO, MENOMINEE (East of a ine 6 miles West of the West boundary of Oconto County), SHAWANO (Except Area North of Townships of Aniwa and Hutchins) COUNTIES

	Rates	Fringes
Electricians:	$ 33.52	29.75%+10.26

ELEC0159-003 06/01/2019

COLUMBIA, DANE, DODGE (Area West of Hwy 26, except Chester and 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

	Rates	Fringes
Electricians:	$ 40.30	22.24

ELEC0219-004 06/01/2016

FLORENCE COUNTY (Townships of Aurora, Commonwealth, Fern, Florence and Homestead) AND MARINETTE COUNTY (Township of Niagara)

	Rates	Fringes
Electricians:		
Electrical contracts over $180,000	$ 32.38	18.63
Electrical contracts under $180,000	$ 30.18	18.42

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* ELEC0242-005 05/31/2020

DOUGLAS COUNTY

	Rates	Fringes
Electricians:	$ 39.77	70.69%

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* ELEC0388-002 06/01/2020

ADAMS, CLARK (Colby, Freemont, Lynn, Mayville, Sherman, Sherwood, Unity), FOREST, JUNEAU, LANGLADE, LINCOLN, MARATHON, MARINETTE (Beecher, Dunbar, Goodman & Pembine), MENOMINEE (Area West of a line 6 miles West of the West boundary of Oconto County), ONEIDA, PORTAGE, SHAWANO (Aniwa and Hutchins), VILAS AND WOOD COUNTIES

	Rates	Fringes
Electricians:	$ 34.85	26%+11.20

ELEC0430-002 06/01/2020

RACINE COUNTY (Except Burlington Township)

	Rates	Fringes
Electricians:	$ 41.86	22.66

ELEC0494-005 06/01/2020

MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Electricians:	$ 42.84	25.54

ELEC0494-006 06/01/2020

CALUMET (Township of New Holstein), DODGE (East of Hwy 26

including Chester Township), FOND DU LAC, MANITOWOC (Schleswig), and SHEBOYGAN COUNTIES

	Rates	Fringes
Electricians:	$ 36.32	22.51

ELEC0494-013 06/07/2020

DODGE (East of Hwy 26 including Chester Twp, excluding Emmet Twp), FOND DU LAC (Except Waupuin), MILWAUKEE, OZAUKEE, MANITOWOC (Schleswig), WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Sound & Communications		
Installer	$ 21.46	18.52
Technician	$ 31.34	20.00

Installation, testing, maintenance, operation and servicing of all sound, intercom, telephone interconnect, closed circuit TV systems, radio systems, background music systems, language laboratories, electronic carillion, antenna distribution systems, clock and program systems and low-voltage systems such as visual nurse call, audio/visual nurse call systems, doctors entrance register systems. Includes all wire and cable carrying audio, visual, data, light and radio frequency signals. Includes the installation of conduit, wiremold, or raceways in existing structures that have been occupied for six months or more where required for the protection of the wire or cable, but does not mean a complete conduit or raceway system. work covered does not include the installation of conduit, wiremold or any raceways in any new construction, or the installation of power supply outlets by means of which external electric power is supplied to any of the foregoing equipment or products

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ELEC0577-003 06/01/2019

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, and Springfield), OUTAGAMIE, WAUPACA, WAUSHARA, AND WINNEBAGO COUNTIES

	Rates	Fringes
Electricians:	$ 33.15	28.50%+10.00

ELEC0890-003 06/01/2020

DODGE (Emmet Township only), GREEN, JEFFERSON, LAFAYETTE, RACINE (Burlington Township), ROCK AND WALWORTH COUNTIES

	Rates	Fringes
Electricians:	$ 37.41	25.95%+11.11

ELEC0953-001 06/02/2019

	Rates	Fringes
Line Construction:		
(1) Lineman	$ 47.53	21.43
(2) Heavy Equipment Operator	$ 42.78	19.80
(3) Equipment Operator	$ 38.02	18.40
(4) Heavy Groundman Driver	$ 33.27	16.88
(5) Light Groundman Driver	$ 30.89	16.11
(6) Groundsman	$ 26.14	14.60

ENGI0139-005 06/01/2020

	Rates	Fringes
Power Equipment Operator		
Group 1	$ 41.62	23.80
Group 2	$ 41.12	23.80
Group 3	$ 40.62	23.80
Group 4	$ 40.36	23.80
Group 5	$ 40.07	23.80
Group 6	$ 34.17	23.80

HAZARDOUS WASTE PREMIUMS:
EPA Level ""A"" protection - $3.00 per hour
EPA Level ""B"" protection - $2.00 per hour
EPA Level ""C"" protection - $1.00 per hour

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

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.

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 jibs lengths measuring 175 feet or under and Backhoes (excavators) weighing 130,000 lbs and over; caisson rigs; pile driver; dredge operator; dredge engineer; Boat Pilot.

GROUP 3: Mechanic or welder - Heavy duty equipment; cranes with a lifting capacity of 25 tons or under; concrete breaker (manual or remote); vibratory/sonic concrete breaker; concrete laser screed; concrete slipform paver; concrete batch plant operator; concrete pvt. spreader - heavy duty (rubber tired); concrete spreader & distributor; automatic subgrader (concrete); concrete grinder & planing machine; concrete slipform curb & gutter machine; slipform concrete placer; tube finisher; hydro blaster (10,000 psi & over); bridge paver; concrete conveyor system; concrete pump; Rotec type Conveyor; stabilizing mixer (self-propelled); shoulder widener; asphalt plant engineer; bituminious paver; bump cutter & grooving machine; milling machine; screed (bituminous paver); asphalt heater, planer & scarifier; Backhoes (excavators) weighing under 130,000 lbs; 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 & A-frames; post driver; material hoist.

GROUP 4: Greaser, roller steel (5 tons or less); roller (pneumatic tired) - self propelled; tractor (mounted or towed compactors & light equipment); shouldering machine; self- propelled chip spreader; concrete spreader; finishing machine; mechanical float; curing machine; power subgrader; joint sawer (multiple blade) belting machine; burlap machine; texturing machine; tractor endloader (rubber tired) - light; jeep digger; forklift; mulcher; launch operator; fireman, environmental burner

GROUP 5: Air compressor; power pack; vibrator hammer and extractor; heavy equipment, leadman; tank car heaters; stump chipper; curb machine operator; Concrete proportioning 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 Tender.

GROUP 6: Off-road material hauler with or without ejector.

IRON0008-002 06/01/2020

BROWN, CALUMET, DOOR, FOND DU LAC, KEWAUNEE, MANITOWOC, MARINETTE, OCONTO, OUTAGAMI, SHAWANO, SHEBOYGAN, AND WINNEBAGO COUNTIES:

	Rates	Fringes
IRONWORKER	$ 37.31	27.62

Paid Holidays: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day & Christmas Day.

IRON0008-003 06/01/2020

KENOSHA, MILWAUKEE, OZAUKEE, RACINE, WALWORTH (N.E. 2/3), WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
IRONWORKER	$ 39.11	27.87

Paid Holidays: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day & Christmas Day.

IRON0383-001 06/01/2020

ADAMS, COLUMBIA, CRAWFORD, DANE, DODGE, FLORENCE, FOREST, GRANT, GREENE, (Excluding S.E. tip), GREEN LAKE, IOWA, JEFFERSON, JUNEAU, LA CROSSE, LAFAYETTE, LANGLADE, MARATHON, MARQUETTE, MENOMINEE, MONROE, PORTAGE, RICHLAND, ROCK (Northern area, vicinity of Edgerton and Milton), SAUK, VERNON, WAUPACA, WAUSHARA, AND WOOD COUNTIES

	Rates	Fringes
IRONWORKER	$ 37.10	27.06

IRON0498-005 06/01/2019

GREEN (S.E. 1/3), ROCK (South of Edgerton and Milton), and

WALWORTH (S.W. 1/3) COUNTIES:

	Rates	Fringes
IRONWORKER	$ 40.25	40.53

IRON0512-008 06/03/2019

BARRON, BUFFALO, CHIPPEWA, CLARK, DUNN, EAU CLAIRE, JACKSON, PEPIN, PIERCE, POLK, RUSK, ST CROIX, TAYLOR, AND TREMPEALEAU COUNTIES

	Rates	Fringes
IRONWORKER	$ 37.60	29.40

IRON0512-021 06/03/2019

ASHLAND, BAYFIELD, BURNETT, DOUGLAS, IRON, LINCOLN, ONEIDA, PRICE, SAWYER, VILAS AND WASHBURN COUNTIES

	Rates	Fringes
IRONWORKER	$ 33.19	29.40

LABO0113-002 06/01/2020

MILWAUKEE AND WAUKESHA COUNTIES

	Rates	Fringes
LABORER		
Group 1	$ 30.05	22.26
Group 2	$ 30.20	22.26
Group 3	$ 30.40	22.26
Group 4	$ 30.55	22.26
Group 5	$ 30.70	22.26
Group 6	$ 26.54	22.26

LABORERS CLASSIFICATIONS

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, and Utility Man); Batch Truck Dumper or Cement Handler; Bituminous Worker (Dumper, Ironer, Smoother, and Tamper);

Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated); Chain Saw Operator; Demolition Burning Torch Laborer

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter (Curb, Sidewalk, and Pavement); Strike Off Man

GROUP 4: Line and Grade Specialist

GROUP 5: Blaster and Powderman

GROUP 6: Flagperson; traffic control person

LABO0113-003 06/01/2020

OZAUKEE AND WASHINGTON COUNTIES

	Rates	Fringes
LABORER		
Group 1	$ 29.30	22.26
Group 2	$ 29.40	22.26
Group 3	$ 29.45	22.26
Group 4	$ 29.65	22.26
Group 5	$ 29.50	22.26
Group 6	$ 26.39	22.26

LABORERS CLASSIFICATIONS

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, and Utility Man); Batch Truck Dumper or Cement Handler; Bituminous Worker (Dumper, Ironer, Smoother, and Tamper); Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated);

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter (Curb, Sidewalk, and Pavement); Strike Off Man

GROUP 4: Line and Grade Specialist

GROUP 5: Blaster; powderman

GROUP 6: Flagperson and Traffic Control Person

LABO0113-011 06/01/2020

KENOSHA AND RACINE COUNTIES

	Rates	Fringes
LABORER		
Group 1	$ 29.11	22.26
Group 2	$ 29.26	22.26
Group 3	$ 29.46	22.26
Group 4	$ 29.43	22.26
Group 5	$ 29.76	22.26
Group 6	$ 26.25	22.26

LABORERS CLASSIFICATIONS:

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, and Utility Man); Batch Truck Dumper or Cement Handler; Bituminous worker (Dumper, Ironer, Smoother, and Tamper); Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated); Chain Saw Operator; Demolition Burning Torch Laborer

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter (Curb, Sidewalk, and Pavement); Strike Off Man

GROUP 4: Line and Grade Specialist

GROUP 5: Blaster and Powderman

GROUP 6: Flagman; traffic control person

LABO0140-002 06/01/2020

ADAMS, ASHLAND, BARRON, BAYFIELD, BROWN, BUFFALO, BURNETT, CALUMET, CHIPPEWA, CLARK, COLUMBIA, CRAWFORD, DODGE, DOOR, DOUGLAS, DUNN, EAU CLAIRE, FLORENCE, FOND DU LAC, FOREST, GRANT, GREEN, GREEN LAKE, IRON, JACKSON, JUNEAU, IOWA,

JEFFERSON, KEWAUNEE, LA CROSSE, LAFAYETTE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE, MARQUETTE, MENOMINEE, MONROE, OCONTO, ONEIDA, OUTAGAMIE, PEPIN, PIERCE, POLK, PORTAGE, PRICE, RICHLAND, ROCK, RUSK, SAUK, SAWYER, SHAWANO, SHEBOYGAN, ST. CROIX, TAYLOR, TREMPEALEAU, VERNON, VILLAS, WALWORTH, WASHBURN, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
LABORER		
Group 1	$ 33.72	17.95
Group 2	$ 33.82	17.95
Group 3	$ 33.87	17.95
Group 4	$ 34.07	17.95
Group 5	$ 33.92	17.95
Group 6	$ 30.35	17.95

LABORER CLASSIFICATIONS

GROUP 1: General Laborer; Tree Trimmer; Conduit Layer; Demolition and Wrecking Laborer; Guard Rail, Fence, and Bridge Builder; Landscaper; Multiplate Culvert Assembler; Stone Handler; Bitminous Worker (Shoveler, Loader, and Utility Man); Batch Truck Dumper or Cement Handler; Bituminous Worker (Dumper, Ironer, Smoother and Tamper); Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated); Chain Saw Operator, Demolition Burning Torch Laborer

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter (Curb, Sidewalk and Pavement); Strike Off Man

GROUP 4: Line and Grade Secialist

GROUP 5: Blaster; powderman

GROUP 6: Flagperson; Traffic Control

LABO0464-003 06/01/2020

DANE COUNTY

	Rates	Fringes
LABORER		

Group 1	$ 34.00	17.95
Group 2	$ 34.10	17.95
Group 3	$ 34.15	17.95
Group 4	$ 34.35	17.95
Group 5	$ 34.20	17.95
Group 6	$ 30.35	17.95

LABORERS CLASSIFICATIONS:

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, and Utility Man); Batch Truck Dumper or Cement Handler; Bituminious Worker (Dumper, Ironer, Smoother, and Tamper); Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated); Chain Saw Operator; Demolition Burning Torch Laborer

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter (Curb, Sidewalk, and Pavement); Strike Off Man

GROUP 4: Line and Grade Specialist

GROUP 5: Blaster; Powderman

GROUP 6: Flagperson and Traffic Control Person

PAIN0106-008 05/01/2017

ASHLAND, BAYFIELD, BURNETT, AND DOUGLAS COUNTIES

	Rates	Fringes
Painters:		
New:		
Brush, Roller	$ 30.33	17.27
Spray, Sandblast, Steel	$ 30.93	17.27
Repaint:		
Brush, Roller	$ 28.83	17.27
Spray, Sandblast, Steel	$ 29.43	17.27

PAIN0108-002 06/01/2019

RACINE COUNTY

	Rates	Fringes
Painters:		
Brush, Roller	$ 36.08	20.36
Spray & Sandblast	$ 37.08	20.36

PAIN0259-002 05/01/2008

BARRON, CHIPPEWA, DUNN, EAU CLAIRE, PEPIN, PIERCE, POLK, RUSK, SAWYER, ST. CROIX, AND WASHBURN COUNTIES

	Rates	Fringes
PAINTER	$ 24.11	12.15

PAIN0259-004 05/01/2015

BUFFALO, CRAWFORD, JACKSON, LA CROSSE, MONROE, TREMPEALEAU, AND VERNON COUNTIES

	Rates	Fringes
PAINTER	$ 22.03	12.45

PAIN0781-002 06/01/2019

JEFFERSON, MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Painters:		
Bridge	$ 33.30	23.86
Brush	$ 32.95	23.86
Spray & Sandblast	$ 33.70	23.86

PAIN0802-002 06/01/2019

COLUMBIA, DANE, DODGE, GRANT, GREEN, IOWA, LAFAYETTE, RICHLAND, ROCK, AND SAUK COUNTIES

	Rates	Fringes
PAINTER		
Brush	$ 30.93	18.44

PREMIUM PAY:
  Structural Steel, Spray, Bridges = $1.00 additional per

hour.

PAIN0802-003 06/01/2019

ADAMS, BROWN, CALUMET, CLARK, DOOR, FOND DU LAC, FOREST, GREEN LAKE, IRON, JUNEAU, KEWAUNEE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE, MARQUETTE, MENOMINEE, OCONTO, ONEIDA, OUTAGAMIE, PORTAGE, PRICE, SHAWANO, SHEBOYGAN, TAYLOR, VILAS, WAUSHARA, WAUPACA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
PAINTER	$ 30.93	18.58

PAIN0934-001 06/01/2017

KENOSHA AND WALWORTH COUNTIES

	Rates	Fringes
Painters:		
Brush	$ 33.74	18.95
Spray	$ 34.74	18.95
Structural Steel	$ 33.89	18.95

PAIN1011-002 06/02/2019

FLORENCE COUNTY

	Rates	Fringes
Painters:	$ 25.76	13.33

PLAS0599-010 06/01/2017

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER		
Area 1	$ 39.46	17.17
Area 2 (BAC)	$ 35.07	19.75
Area 3	$ 35.61	19.40
Area 4	$ 34.70	20.51
Area 5	$ 36.27	18.73
Area 6	$ 32.02	22.99

AREA DESCRIPTIONS

AREA 1: BAYFIELD, DOUGLAS, PRICE, SAWYER, AND WASHBURN

COUNTIES

AREA 2: ADAMS, ASHLAND, BARRON, BROWN, BURNETT, CALUMET, CHIPPEWA, CLARK, COLUMBIA, DODGE, DOOR, DUNN, FLORENCE, FOND DU LAC, FOREST, GREEN LAKE, IRON, JEFFERSON, KEWAUNEE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE, MARQUETTE, MENOMINEE, OCONTO, ONEIDA, OUTAGAMIE, POLK, PORTAGE, RUSK, ST CROIX, SAUK, SHAWANO, SHEBOYGAN, TAYLOR, VILAS, WALWORTH, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

AREA 3: BUFFALO, CRAWFORD, EAU CLAIRE, JACKSON, JUNEAU, LA CROSSE MONROE, PEPIN, PIERCE, RICHLAND, TREMPEALEAU, AND VERNON COUNTIES

AREA 4: MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

AREA 5: DANE, GRANT, GREEN, IOWA, LAFAYETTE, AND ROCK COUNTIES

AREA 6: KENOSHA AND RACINE COUNTIES

TEAM0039-001 06/01/2020

	Rates	Fringes
TRUCK DRIVER		
1 & 2 Axles	$ 31.07	22.94
3 or more Axles; Euclids, Dumptor & Articulated, Truck Mechanic	$ 31.22	22.94
WELL DRILLER	$ 16.52	3.70

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their

own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

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 (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

"General Decision Number: WI20200008 08/28/2020

Superseded General Decision Number: WI20190008

State: Wisconsin

Construction Types: Heavy (Sewer and Water Line and Tunnel)

Counties: Wisconsin Statewide.

TUNNEL, SEWER & WATER LINE CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2020
1	01/24/2020
2	02/28/2020
3	03/06/2020
4	06/05/2020
5	06/12/2020
6	06/19/2020
7	07/17/2020
8	07/24/2020
9	08/28/2020

BRWI0001-002 06/03/2019

CRAWFORD, JACKSON, JUNEAU, LA CROSSE, MONROE, TREMPEALEAU, AND VERNON COUNTIES

	Rates	Fringes
BRICKLAYER	$ 33.80	24.28

BRWI0002-002 06/01/2019

ASHLAND, BAYFIELD, DOUGLAS, AND IRON COUNTIES

	Rates	Fringes
BRICKLAYER	$ 39.94	23.30

BRWI0002-005 06/01/2019

ADAMS, ASHLAND, BARRON, BROWN, BURNETT, CALUMET, CHIPPEWA, CLARK, COLUMBIA, DODGE, DOOR, DUNN, FLORENCE, FOND DU LAC, FOREST, GREEN LAKE, IRON, JEFFERSON, KEWAUNEE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE, MARQUETTE, MENOMINEE, OCONTO, ONEIDA, OUTAGAMIE, POLK, PORTAGE, RUSK, ST CROIX, SAUK, SHAWANO, SHEBOYGAN, TAYLOR, VILAS, WALWORTH, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 35.51	23.37

BRWI0003-002 06/03/2019

BROWN, DOOR, FLORENCE, KEWAUNEE, MARINETTE, AND OCONTO COUNTIES

	Rates	Fringes
BRICKLAYER	$ 34.18	23.90

BRWI0004-002 06/01/2019

KENOSHA, RACINE, AND WALWORTH COUNTIES

	Rates	Fringes
BRICKLAYER	$ 38.43	25.10

BRWI0006-002 06/01/2019

ADAMS, CLARK, FOREST, LANGLADE, LINCOLN, MARATHON, MENOMINEE, ONEIDA, PORTAGE, PRICE, TAYLOR, VILAS AND WOOD COUNTIES

	Rates	Fringes
BRICKLAYER	$ 35.06	23.02

BRWI0007-002 06/03/2019

GREEN, LAFAYETTE, AND ROCK COUNTIES

	Rates	Fringes
BRICKLAYER	$ 35.57	24.22

BRWI0008-002 06/01/2019

MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
BRICKLAYER	$ 38.93	24.22

BRWI0009-001 06/03/2019

GREEN LAKE, MARQUETTE, OUTAGAMIE, SHAWANO, WAUPACA, WASHARA, AND WINNEBAGO COUNTIES

	Rates	Fringes
BRICKLAYER	$ 34.18	23.90

BRWI0011-002 06/03/2019

CALUMET, FOND DU LAC, MANITOWOC, AND SHEBOYGAN COUNTIES

	Rates	Fringes
BRICKLAYER	$ 34.18	23.90

BRWI0013-002 06/03/2019

DANE, GRANT, IOWA, AND RICHLAND COUNTIES

	Rates	Fringes

BRICKLAYER.....$ 35.56 24.23

BRWI0019-002 06/03/2019

BARRON, BUFFALO, BURNETT, CHIPPEWA, DUNN, EAU CLAIRE, PEPIN, PIERCE, POLK, RUSK, ST. CROIX, SAWYER AND WASHBURN COUNTIES

	Rates	Fringes
BRICKLAYER	$ 33.40	24.68

BRWI0021-002 06/03/2019

DODGE AND JEFFERSON COUNTIES

	Rates	Fringes
BRICKLAYER	$ 35.75	24.02

BRWI0034-002 06/03/2019

COLUMBIA AND SAUK COUNTIES

	Rates	Fringes
BRICKLAYER	$ 35.56	24.23

CARP0087-001 05/01/2016

BURNETT (W. of Hwy 48), PIERCE (W. of Hwy 29), POLK (W. of Hwys 35, 48 & 65), AND ST. CROIX (W. of Hwy 65) COUNTIES

	Rates	Fringes
Carpenter & Piledrivermen	$ 36.85	18.39

CARP0252-002 06/01/2016

ADAMS, BARRON, BAYFIELD (Eastern 2/3), BROWN, BUFFALO, BURNETT (E. of Hwy 48), CALUMET, CHIPPEWA, CLARK, COLUMBIA, CRAWFORD, DANE, DODGE, DOOR, DUNN, EAU CLAIRE, FLORENCE (except area bordering Michigan State Line), FOND DU LAC, FOREST, GRANT, GREEN, GREEN LAKE, IOWA, IRON, JACKSON, JEFFERSON, JUNEAU, KEWAUNEE, LA CROSSE, LAFAYETTE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE (except N.E. corner), MARQUETTE, MENOMINEE, MONROE, OCONTO, ONEIDA, OUTAGAMIE, PEPIN, PIERCE (E. of Hwys 29 & 65), POLK (E. of Hwys 35, 48 & 65), PORTAGE, PRICE, RICHLAND, ROCK, RUSK, SAUK, SAWYER, SHAWANO, SHEBOYGAN,

ST CROIX (E. of Hwy 65), TAYLOR, TREMPEALEAU, VERNON, VILAS, WALWORTH, WASHBURN, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
CARPENTER		
CARPENTER	$ 33.56	18.00
MILLWRIGHT	$ 35.08	18.35
PILEDRIVER	$ 34.12	18.00

CARP0252-010 06/01/2016

ASHLAND COUNTY

	Rates	Fringes
Carpenters		
Carpenter	$ 33.56	18.00
Millwright	$ 35.08	18.35
Pile Driver	$ 34.12	18.00

CARP0264-003 06/01/2016

KENOSHA, MILWAUKEE, OZAUKEE, RACINE, WAUKESHA, AND WASHINGTON COUNTIES

	Rates	Fringes
CARPENTER	$ 35.78	22.11

CARP0361-004 05/01/2018

BAYFIELD (West of Hwy 63) AND DOUGLAS COUNTIES

	Rates	Fringes
CARPENTER	$ 36.15	20.43

CARP2337-001 06/01/2016

ZONE A: MILWAUKEE, OZAUKEE, WAUKESHA AND WASHINGTON

ZONE B: KENOSHA & RACINE

	Rates	Fringes

PILEDRIVERMAN

Zone A	$ 31.03	22.69
Zone B	$ 31.03	22.69

CARP2337-003 06/01/2019

	Rates	Fringes
MILLWRIGHT		
Zone A	$ 33.58	21.53
Zone B	$ 33.58	21.53

ZONE DEFINITIONS

ZONE A: MILWAUKEE, OZAUKEE, WAUKESHA AND WASHINGTON COUNTIES

ZONE B: KENOSHA & RACINE COUNTIES

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* ELEC0014-002 06/14/2020

ASHLAND, BARRON, BAYFIELD, BUFFALO, BURNETT, CHIPPEWA, CLARK (except Maryville, Colby, Unity, Sherman, Fremont, Lynn & 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

	Rates	Fringes
Electricians:	$ 35.98	20.98

ELEC0127-002 06/01/2020

KENOSHA COUNTY

	Rates	Fringes
Electricians:	$ 41.62	30%+12.70

ELEC0158-002 06/03/2019

BROWN, DOOR, KEWAUNEE, MANITOWOC (except Schleswig), MARINETTE(Wausuakee and area South thereof), OCONTO, MENOMINEE (East of a ine 6 miles West of the West boundary of Oconto County), SHAWANO (Except Area North of Townships of Aniwa and Hutchins) COUNTIES

	Rates	Fringes
Electricians:	$ 33.52	29.75%+10.26

ELEC0159-003 06/01/2019

COLUMBIA, DANE, DODGE (Area West of Hwy 26, except Chester and 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

	Rates	Fringes
Electricians:	$ 40.30	22.24

ELEC0219-004 06/01/2016

FLORENCE COUNTY (Townships of Aurora, Commonwealth, Fern, Florence and Homestead) AND MARINETTE COUNTY (Township of Niagara)

	Rates	Fringes
Electricians:		
Electrical contracts over $180,000	$ 32.38	18.63
Electrical contracts under $180,000	$ 30.18	18.42

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* ELEC0242-005 05/31/2020

DOUGLAS COUNTY

	Rates	Fringes
Electricians:	$ 39.77	70.69%

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* ELEC0388-002 06/01/2020

ADAMS, CLARK (Colby, Freemont, Lynn, Mayville, Sherman, Sherwood, Unity), FOREST, JUNEAU, LANGLADE, LINCOLN, MARATHON, MARINETTE (Beecher, Dunbar, Goodman & Pembine), MENOMINEE (Area West of a line 6 miles West of the West boundary of Oconto County), ONEIDA, PORTAGE, SHAWANO (Aniwa and Hutchins), VILAS AND WOOD COUNTIES

	Rates	Fringes
Electricians:	$ 34.85	26%+11.20

ELEC0430-002 06/01/2020

RACINE COUNTY (Except Burlington Township)

	Rates	Fringes
Electricians:	$ 41.86	22.66

ELEC0494-005 06/01/2020

MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Electricians:	$ 42.84	25.54

ELEC0494-006 06/01/2020

CALUMET (Township of New Holstein), DODGE (East of Hwy 26 including Chester Township), FOND DU LAC, MANITOWOC (Schleswig), and SHEBOYGAN COUNTIES

	Rates	Fringes
Electricians:	$ 36.32	22.51

ELEC0577-003 06/01/2019

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, and Springfield), OUTAGAMIE, WAUPACA, WAUSHARA, AND WINNEBAGO COUNTIES

	Rates	Fringes
Electricians:	$ 33.15	28.50%+10.00

ELEC0890-003 06/01/2020

DODGE (Emmet Township only), GREEN, JEFFERSON, LAFAYETTE, RACINE (Burlington Township), ROCK AND WALWORTH COUNTIES

	Rates	Fringes
Electricians:	$ 37.41	25.95%+11.11

ENGI0139-003 06/01/2020

REMAINING COUNTIES

	Rates	Fringes
Power Equipment Operator		
Group 1	$ 42.92	23.15
Group 2	$ 41.67	23.15
Group 3	$ 39.97	23.15
Group 4	$ 39.44	23.15
Group 5	$ 37.37	23.15
Group 6	$ 35.84	23.15

HAZARDOUS WASTE PREMIUMS:
EPA Level ""A"" Protection: $3.00 per hour
EPA Level ""B"" Protection: $2.00 per hour
EPA Level ""C"" Protection: $1.00 per hour

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Cranes, Tower Cranes and Derricks with or without attachments with a lifting capacity of over 100 tons; Cranes, Tower Cranes, and Derricks with boom, leads and/or jib lengths 176 ft or longer.

GROUP 2: Backhoes (Excavators) weighing 130,00 lbs and over; Cranes, Tower Cranes and Derricks with or without attachments with a lifting capacity of 100 tons or less; Cranes, Tower Cranes, and Derricks with boom, leads, and/or jib lengths 175 ft or less; Caisson Rigs; Pile Driver

GROUP 3: Backhoes (Excavators) weighing under 130,000 lbs; Travelling Crane (bridge type); Milling Machine; Concrete Paver over 27 E; Concrete Spreader and Distributor; Concrete Laser Screed; Concrete Grinder and Planing Machine; Slipform Curb and Gutter Machine; Boring Machine (Directional); Dredge Operator; Skid Rigs; over 46 meter Concrete Pump.

GROUP 4: Hydraulic Backhoe (tractor or truck mounted); Hydraulic Crane, 10 tons or less; Tractor, Bulldozer, or End Loader (over 40 hp); Motor Patrol; Scraper Operator; Bituminous Plant and Paver Operator; Screed-Milling Machine; Roller over 5 tons; Concrete pumps 46 meter and under; Grout Pumps; Rotec type machine; Hydro Blaster,

10,000 psi and over; Rotary Drill Operator; Percussion Drilling Machine; Air Track Drill with or without integral hammer; Blaster; Boring Machine (vertical or horizontal); Side Boom; Trencher, wheel type or chain type having 8 inch or larger bucket; Rail Leveling Machine (Railroad); Tie Placer; Tie Extractor; Tie Tamper; Stone Leveler; Straddle Carrier; Material Hoists; Stack Hoist; Man Hoists; Mechanic and Welder; Off Road Material Haulers.

GROUP 5: Tractor, Bulldozer, or Endloader (under 40 hp); Tampers -Compactors, riding type; Stump Chipper, large; Roller, Rubber Tire; Backfiller; Trencher, chain type (bucket under 8 inch); Concrete Auto Breaker, large; Concrete Finishing Machine (road type); Concrete Batch Hopper; Concrete Conveyor Systems; Concrete Mixers, 14S or over; Pumps, Screw Type and Gypsum); Hydrohammers, small; Brooms and Sweeeprs; Lift Slab Machine; Roller under 5 tons; Industrial Locomotives; Fireman (Pile Drivers and Derricks); Pumps (well points); Hoists, automatic; A-Frames and Winch Trucks; Hoists (tuggers); Boats (Tug, Safety, Work Barges and Launches); Assistant Engineer

GROUP 6: Shouldering Machine Operator; Farm or Industrial Tractor mounted equipment; Post Hole Digger; Auger (vertical and horizontal); Skid Steer Loader with or without attachments; Robotic Tool Carrier with or without attachments; Power Pack Vibratory/Ultra Sound Driver and Extractor; Fireman (Asphalt Plants); Screed Operator; Stone Crushers and Screening Plants; Air, Electric, Hydraulic Jacks (Slip Form); Prestress Machines; Air Compressor, 400 CFM or over; Refrigeration Plant/Freese Machine; Boiler Operators (temporary heat); Forklifts; Welding Machines; Generators; Pumps over 3""; Heaters, Mechanical; Combination small equipment operator; Winches, small electric; Oiler; Greaser; Rotary Drill Tender; Conveyor; Elevator Operator

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ENGI0139-007 06/01/2020

DODGE, FOND DU LAC, JEFFERSON, KENOSHA, MILWAUKEE, OZAUKEE, RACINE, SHEBOYGAN, WALWORTH, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Power Equipment Operator		
Group 1	$ 41.64	23.25
Group 2	$ 40.86	23.25
Group 3	$ 39.91	23.25
Group 4	$ 38.86	23.25

Group 5.....$ 37.46 23.25

HAZARDOUS WASTE PREMIUMS:
EPA Level ""A"" Protection: $3.00 per hour
EPA Level ""B"" Protection: $2.00 per hour
EPA Level ""C"" Protection: $1.00 per hour

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

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; Backhoes (Excavators) 130,000 lbs and over; Caisson Rigs and Pile Drivers

GROUP 2: Cranes, Tower Cranes and Derricks with or without attachments with a lifting capacity of 100 tons or under; or Cranes, Tower Cranes, and Derricks with boom, lead, and\or jib lengths measuring 175 feet or under; Backhoes (Excavators) under 130,000 lbs; Skid Rigs; Dredge Operator: Traveling Crane (Bridge type); Concrete Paver over 27 E; Concrete Spreader and Distributor; Concrete Pumps and Boring Machines (directional)

GROUP 3: Material Hoists; Stack Hoists; Tractor or Truck mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane, 5 tons or under; Manhoist; Tractor over 40 hp; Bulldozer over 40 hp; Endloader over 40 hp; Forklift, 25 ft and over; Motor Patrol; Scraper Operator; Sideboom; Straddle Carrier; Mechanic and Welder; Bituminous Plant and Paver Operator; Roller over 5 tons; Percussion Drill Operator; Rotary Drill Operator; Blaster; Air Track Drill; Trencher (wheel type or chain type having over 8 inch bucket); Elevator; Milling Machine and Boring Machine (horizontal or vertical); Backhoe Mounted Compactor

GROUP 4: Backfiller; Concrete Auto Breaker (large); Concrete Finishing Machine (road type); Roller, Rubber Tire; Concrete Batch Hopper; Concrete Conveyor System; Concrete Mixers (14S or over); Screw type Pumps and Gypsum Pumps; Grout Pumps; Tractor, Bulldozer, End Loader, under 40 hp; Pumps (well points); Trencher (chain type 8 inch or smaller bucket; Industrial Locomotives; Roller under 5 tons; Fireman (Piledrivers and Derricks); Robotic Tool Carrier with or without attachments.

GROUP 5: Hoists (Automatic); Forklift, 12 ft to 25 ft; Tamper-Compactors, riding type; A-Frame andWinch Trucks; Concrete Auto Breaker; Hydrohammer, small; Brooms and

Sweepers; Hoist (Tuggers); Stump Chipper, large; Boats (Tug, Safety, Work Barges and Launch); Shouldering Machine Operator; Screed Operator; Farm or Industrial Tractor; Post Hole Digger; Stone Crushers and Screening Plants; Firemen (Asphalt Plants); Air Compressor (400 CFM or over); Augers (vertical and horizontal); Generators, 150 KW and over; Air, Electric Hydraulic Jacks (Slipform); Prestress Machines; Skid Steer Loader with or without attachments; Boiler operators (temporary heat); Forklift, 12 ft and under; Screed Operator Milling Machine; Refrigeration Plant/Freeze Machine; Power Pack Vibratory/Ultra Sound Driver and Extractor; Generators under 150 KW; Combination small equipment operator; Compressors under 400 CFM; Welding Machines; Heaters, Mechanical; Pumps; Winches, Small Electric; Oiler and Greaser; Conveyor; High pressure utility locating machine (daylighting machine).

IRON0008-002 06/01/2020

BROWN, CALUMET, DOOR, FOND DU LAC, KEWAUNEE, MANITOWOC, MARINETTE, OCONTO, OUTAGAMI, SHAWANO, SHEBOYGAN, AND WINNEBAGO COUNTIES:

	Rates	Fringes
IRONWORKER	$ 37.31	27.62

Paid Holidays: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day & Christmas Day.

IRON0008-003 06/01/2020

KENOSHA, MILWAUKEE, OZAUKEE, RACINE, WALWORTH (N.E. 2/3), WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
IRONWORKER	$ 39.11	27.87

Paid Holidays: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day & Christmas Day.

IRON0383-001 06/01/2020

ADAMS, COLUMBIA, CRAWFORD, DANE, DODGE, FLORENCE, FOREST,

GRANT, GREENE, (Excluding S.E. tip), GREEN LAKE, IOWA, JEFFERSON, JUNEAU, LA CROSSE, LAFAYETTE, LANGLADE, MARATHON, MARQUETTE, MENOMINEE, MONROE, PORTAGE, RICHLAND, ROCK (Northern area, vicinity of Edgerton and Milton), SAUK, VERNON, WAUPACA, WAUSHARA, AND WOOD COUNTIES

	Rates	Fringes
IRONWORKER	$ 37.10	27.06

IRON0498-005 06/01/2019

GREEN (S.E. 1/3), ROCK (South of Edgerton and Milton), and WALWORTH (S.W. 1/3) COUNTIES:

	Rates	Fringes
IRONWORKER	$ 40.25	40.53

IRON0512-008 06/03/2019

BARRON, BUFFALO, CHIPPEWA, CLARK, DUNN, EAU CLAIRE, JACKSON, PEPIN, PIERCE, POLK, RUSK, ST CROIX, TAYLOR, AND TREMPEALEAU COUNTIES

	Rates	Fringes
IRONWORKER	$ 37.60	29.40

IRON0512-021 06/03/2019

ASHLAND, BAYFIELD, BURNETT, DOUGLAS, IRON, LINCOLN, ONEIDA, PRICE, SAWYER, VILAS AND WASHBURN COUNTIES

	Rates	Fringes
IRONWORKER	$ 33.19	29.40

LABO0113-004 06/01/2020

MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Laborers: (Open Cut)		
Group 1	$ 16.38	21.08

Group 2	$ 18.65	21.08
Group 3	$ 22.19	21.08
Group 4	$ 31.56	21.08
Group 5	$ 31.70	21.08
Group 6	$ 31.76	21.08
Group 7	$ 34.77	21.08
Group 8	$ 37.59	21.08
Group 9	$ 38.23	21.08

LABORERS CLASSIFICATIONS [OPEN CUT]

GROUP 1: Yard Laborer

GROUP 2: Landscaper

GROUP 3: Flag Person

GROUP 4: Paving Laborer

GROUP 5: General Laborer on Surface; Top Man

GROUP 6: Mud Mixer

GROUP 7: Mucker; Form Stripper; Bottom Digger and Misc; Bottom Man and Welder on Surface

GROUP 8: Concrete Manhole Builder; Caisson Worker; Miner; Pipe Layer; Rock Driller and Joint Man; Timber Man and Concrete Brusher; Bracer in Trench Behind Machine & Tight Sheeting; Concrete Formsetter and Shoveler; Jackhammer Operator

GROUP 9: Blaster

LABO0113-005 06/01/2020

SEWER, TUNNEL & UNDERGROUND

KENOSHA AND RACINE COUNTIES

	Rates	Fringes
Laborers:		
Group 1	$ 23.05	21.08
Group 2	$ 28.98	21.08
Group 3	$ 32.34	21.08
Group 4	$ 34.11	21.08

TUNNEL WORK UNDER COMPRESSED AIR: 0-15 lbs add $1.00, 15-30

lbs add $2.00, over 30 lbs add $3.00

LABORERS CLASSIFICATIONS

GROUP 1: Flagperson

GROUP 2: Top Man, General Laborer, Wellpoint Installation, Wire Mesh and Reinforcement, Concrete Worker, Form Stripper, Strike-off Work

GROUP 3: Machine and Equipment Operator, Sheeting, Form Setting, Patch Finisher, Bottom Man, Joint Sawer, Gunnite Man, Manhole Builder, Welder-Torchman, Blaster, Caulker, Bracer, Bull Float, Conduit Worker, Mucker and Car Pusher, Raker and Luteman, Hydraulic Jacking of Shields, Shield Drivers, Mining Machine, Lock Tenders, Mucking Machine Operator, Motor Men & Gauge Tenders and operation of incidental Mechanical Equipment and all Power Driven Tools

GROUP 4: Pipelayer, Miner and Laser Operator

LABO0113-008 06/01/2020

MILWAUKEE, OZAUKEE, WASHINGTON & WAUKESHA COUNTIES

	Rates	Fringes
Laborers: (Tunnel-Free Air)		
Group 1	$ 22.19	21.08
Group 2	$ 31.70	21.08
Group 3	$ 31.76	21.08
Group 4	$ 34.77	21.08
Group 5	$ 34.91	21.08
Group 6	$ 37.59	21.08
Group 7	$ 38.23	21.08

LABORERS CLASSIFICATIONS [TUNNEL - FREE AIR]:

GROUP 1: Flagperson

GROUP 2: General Laborer on surface; Tower Man

GROUP 3: Saw Man; Top Man

GROUP 4: Form Stripper; Car Pusher

GROUP 5: Mucker; Dinkey; Welder (rate on surface)

GROUP 6: Concrete Manhole Builder; Mucking Machine; Miner; Mining Machine; Welder; Rock Driller; Concrete Buster; Jack Hammer Operator; Caisson Worker; Pipelayer and Joint Man; Bracerman

GROUP 7: Blaster

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* LABO0113-009 06/01/2020

MILWAUKEE, OZAUKEE, WASHINGTON & WAUKESHA COUNTIES

	Rates	Fringes
Laborers: (Tunnel -		
*COMPRESSED AIR 0 - 15 lbs.)		
Group 1	$ 22.19	21.08
Group 2	$ 31.70	21.08
Group 3	$ 35.31	21.08
Group 4	$ 36.11	21.08
Group 5	$ 36.23	21.08
Group 6	$ 38.93	21.08
Group 7	$ 39.55	21.08

LABORERS CLASSIFICATIONS [TUNNEL - COMPRESSED AIR]:

*Compressed Air 15 - 30 lbs add $2.00 to all classifications
*Compressed Air over 30 lbs add $3.00 to all classifcations

GROUP 1: Flagperson

GROUP 2: General Laborer on surface

GROUP 3: Lock Tender on surface

GROUP 4: Form Stripper; Car Pusher

GROUP 5: Mucker; Dinkey

GROUP 6: Mucking Machine; Miner; Mining Machine; Welder & Rock Driller; Lock Tender in tunnel; Concrete Buster; Jack Hammer Operator; Caisson Worker; Pielayer and Joint Man; Bracerman; Nozzle Man on Gunite; Timber Man; Concrete Brusher

GROUP 7: Blaster

NOTE: Hazardous & Toxic Waste Removal: add $0.15 per hour.

LABO0140-005 06/01/2020

ADAMS, ASHLAND, BARRON, BROWN, BUFFALO, CALUMET, CHIPPEWA, CLARK, COLUMBIA, CRAWFORD, DODGE, DOOR, DUNN, EAU CLAIRE, FLORENCE,FOND DU LAC, FOREST, GRANT, GREEN, GREEN LAKE, IOWA, JACKSON, JEFFERSON, JUNEAU, LACROSSE, LAFAYETTE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE, MARQUETTE, MENOMINEE, MONROE, OCONTO, ONEIDA, OUTAGAMIE, PEPIN, PIERCE, POLK, PORTAGE, PRICE, RICHLAND, ROCK, RUSK, ST CROIX, SAUK, SAWYER, SHAWANO, SHEBOYGAN, TAYLOR, TREMMPEALEAU, VERNON, VILAS, WALWWORTH, WASHBURN, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
LABORER (SEWER & WATER)		
Group 1	$ 29.33	17.88
Group 2	$ 31.18	17.88
Group 3	$ 31.48	17.88
Group 4	$ 32.13	17.88

FOR ALL TUNNEL WORK UNDER COMPRESSED AIR: 0-15 lbs add $1.00, 15-30 lbs add $2.00, over 30 lbs add $3.00

LABORER CLASSIFICATIONS:

GROUP 1: Flagperson

GROUP 2: General Laborer, Wellpoint Installation; Form Stripper; Strike Off worker

GROUP 3: Sheeting Formsetting; Patch Finisher; Bottom Man; Joint Sawer; Gunnite Man; Manhole Builder; Welder; Torchman; Blaster; Caulker Bracer; Bull Float; Mucker and Car Pusher; Raker and Luteman; Hydraulic jacking of shields, Shield Drivers; Mining Machine; Lock Tenders; Mucking Machine Operators; Motor Men and Gauge Tenders; Power Tool Operators

GROUP 4: Pipelayer, Miner, and Laser Operator

LABO0464-002 06/01/2020

DANE AND DOUGLAS COUNTIES

	Rates	Fringes

LABORER

Group 1	$ 29.23	17.88
Group 2	$ 31.43	17.88
Group 3	$ 31.63	17.88
Group 4	$ 32.38	17.88

FOR ALL TUNNEL WORK UNDER COMPRESSED AIR: 0 - 15 lbs add $1.00, 15- 30 lbs add $2.00, over 30 lbs add $3.00

LABORERS CLASSIFICATIONS:

GROUP 1: Flagperson

GROUP 2: General Laborer; Wellpoint Installation; Concrete Worker; Form Stripper; Strike Off worker

GROUP 3: Sheeting Formsetting; Patch Finisher; Bottom Man; Joint Sawer; Gunnite Man; Manhole Builder; Welder; Torchman; Blaster; Caulker Bracer; Bull Float; Mucker and Car Pusher; Raker and Luteman; Hydraulic jacking of shields, Shield Dirvers; Mining Machine; Lock Tenders; Mucking Machine Operators; Motor Men and Gauge Tenders; Power Tool Operators

GROUP 4: Pipelayer, Miner, and Laser Operator

LABO1091-010 06/01/2020

BAYFIELD, BURNETT, IRON, SAWYER, AND WASHBURN COUNTIES

	Rates	Fringes
Laborers: (SEWER & WATER)		
Group 1	$ 29.02	17.88
Group 2	$ 31.08	17.88
Group 3	$ 31.28	17.88
Group 4	$ 32.03	17.88

FOR ALL TUNNEL WORK UNDER COMPRESSED AIR:
0 - 15 lbs add $1.00, 15-30 lbs add $2.00, over 30 lbs add $3.00

LABORERS CLASSIFICATIONS:

GROUP 1: Flagperson

GROUP 2: Laborers, Wellpoint Installation; Form Stripper;

Strike Off worker

GROUP 3: Sheeting Formsetting; Patch Finisher; Bottom Man; Joint Sawer; Gunnite Man; Manhole Builder; Welder; Torchman; Blaster; Caulker Bracer; Bull Float; Mucker and Car Pusher; Raker and Luteman; Hydraulic jacking of shields, Shield Dirvers; Mining Machine; Lock Tenders; Mucking Machine Operators; Motor Men and Gauge Tenders; Power Tool Operators

GROUP 4: Pipelayer, Miner, and Laser Operator

PLAS0599-010 06/01/2017

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER		
Area 1	$ 39.46	17.17
Area 2 (BAC)	$ 35.07	19.75
Area 3	$ 35.61	19.40
Area 4	$ 34.70	20.51
Area 5	$ 36.27	18.73
Area 6	$ 32.02	22.99

AREA DESCRIPTIONS

AREA 1: BAYFIELD, DOUGLAS, PRICE, SAWYER, AND WASHBURN COUNTIES

AREA 2: ADAMS, ASHLAND, BARRON, BROWN, BURNETT, CALUMET, CHIPPEWA, CLARK, COLUMBIA, DODGE, DOOR, DUNN, FLORENCE, FOND DU LAC, FOREST, GREEN LAKE, IRON, JEFFERSON, KEWAUNEE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE, MARQUETTE, MENOMINEE, OCONTO, ONEIDA, OUTAGAMIE, POLK, PORTAGE, RUSK, ST CROIX, SAUK, SHAWANO, SHEBOYGAN, TAYLOR, VILAS, WALWORTH, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

AREA 3: BUFFALO, CRAWFORD, EAU CLAIRE, JACKSON, JUNEAU, LA CROSSE MONROE, PEPIN, PIERCE, RICHLAND, TREMPEALEAU, AND VERNON COUNTIES

AREA 4: MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

AREA 5: DANE, GRANT, GREEN, IOWA, LAFAYETTE, AND ROCK COUNTIES

AREA 6: KENOSHA AND RACINE COUNTIES

TEAM0039-001 06/01/2020

	Rates	Fringes
TRUCK DRIVER		
1 & 2 Axles	$ 31.07	22.94
3 or more Axles; Euclids, Dumptor & Articulated, Truck Mechanic	$ 31.22	22.94
WELL DRILLER	$ 16.52	3.70

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

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 (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage

determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those

classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

August 2018

NOTICE TO BIDDERS
WAGE RATE DECISION

The wage rate decision of the Department of Labor which has been incorporated in these advertised specifications is incomplete in that the classifications may be omitted from the Department 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 omission 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.

If a project includes multiple types of construction (highway, bridge over navigable water, sanitary sewer and water main, building) and there is not a separate wage determination for this type of work included in the proposal, use the wage determination that is in the proposal.

If a project includes multiple types of construction, different wage rate determinations may be inserted into the contract (WI10/Highway = in all WisDOT highway contracts, WI15/Heavy = bridge over navigable water per USDOL and US Coast Guard designation, WI8/Heavy (Sewer & Water Line & Tunnel) = sanitary sewer and water main if the cost is more than 20% of the contract and/or at least $1,000,000, and Building). If multiple wage rate determinations are inserted into the contract, use the classification in the wage determination for the work being done. Use WI15 wage rates when working on the bridge and/or structure from bank to bank. Use WI8 wage rates when working on any sanitary sewer or water main work. Use Building wage rates for all work done within the footprint of the building. Use WI10 wage rates for all other highway work in the contract and approaches to structures. For example, if a laborer is working within the footprint of a building, use the Laborer rate in the Building wage determination inserted in the contract. If a laborer is working on a bridge/structure within the banks, use the Laborer rate in the WI15/Heavy wage determination if inserted in the contract. If the laborer is working on the highway, use the Laborer rate in the WI10/Highway wage determination.

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0002	201.0105 Clearing	139.000 STA	_____._____	_____._____
0004	201.0120 Clearing	909.000 ID	_____._____	_____._____
0006	201.0205 Grubbing	140.000 STA	_____._____	_____._____
0008	201.0220 Grubbing	909.000 ID	_____._____	_____._____
0010	203.0200 Removing Old Structure (station) 0001. STA. 123+50	LS	LUMP SUM	_____._____
0012	203.0200 Removing Old Structure (station) 0002. STA 433NS+99.67	LS	LUMP SUM	_____._____
0014	203.0200 Removing Old Structure (station) 0003. STA 621NSNB+00.00	LS	LUMP SUM	_____._____
0016	203.0200 Removing Old Structure (station) 0004. STA. 417NS+50	LS	LUMP SUM	_____._____
0018	203.0200 Removing Old Structure (station) 0005. STA. 418NS+15	LS	LUMP SUM	_____._____
0020	203.0200 Removing Old Structure (station) 0006. STA. 22RDE+37	LS	LUMP SUM	_____._____
0022	203.0200 Removing Old Structure (station) 0007. STA. 20+07.0	LS	LUMP SUM	_____._____
0024	203.0200 Removing Old Structure (station) 0008. STA. 15TRDE+54	LS	LUMP SUM	_____._____
0026	203.0200 Removing Old Structure (station) 0009. STA. 114NO+00	LS	LUMP SUM	_____._____
0028	203.0210.S Abatement of Asbestos Containing Material (structure) 0001. B-40-137	LS	LUMP SUM	_____._____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0030	203.0210.S Abatement of Asbestos Containing Material (structure) 0004. B-40-259	LS	LUMP SUM	_____.____
0032	203.0225.S Debris Containment (structure) 0001. B-40-138	LS	LUMP SUM	_____.____
0034	203.0225.S Debris Containment (structure) 0002. B-40-875	LS	LUMP SUM	_____.____
0036	203.0225.S Debris Containment (structure) 0003. B-40-876	LS	LUMP SUM	_____.____
0038	203.0225.S Debris Containment (structure) 0004. B-40-877	LS	LUMP SUM	_____.____
0040	203.0600.S Removing Old Structure Over Waterway With Minimal Debris (station) 0001. STA 408+50NS	LS	LUMP SUM	_____.____
0042	203.0600.S Removing Old Structure Over Waterway With Minimal Debris (station) 0002. STA. 220+00NSSB	LS	LUMP SUM	_____.____
0044	204.0100 Removing Concrete Pavement	175,089.000 SY	_____.____	_____.____
0046	204.0110 Removing Asphaltic Surface	14,141.000 SY	_____.____	_____.____
0048	204.0120 Removing Asphaltic Surface Milling	199,191.000 SY	_____.____	_____.____
0050	204.0140 Removing Gutter	200.000 LF	_____.____	_____.____
0052	204.0150 Removing Curb & Gutter	7,571.000 LF	_____.____	_____.____
0054	204.0155 Removing Concrete Sidewalk	4,828.000 SY	_____.____	_____.____
0056	204.0157 Removing Concrete Barrier	18,542.000 LF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0058	204.0165 Removing Guardrail	1,240.000 LF	_____.____	_____.____
0060	204.0170 Removing Fence	12,190.000 LF	_____.____	_____.____
0062	204.0175 Removing Concrete Slope Paving	463.000 SY	_____.____	_____.____
0064	204.0195 Removing Concrete Bases	160.000 EACH	_____.____	_____.____
0066	204.0210 Removing Manholes	72.000 EACH	_____.____	_____.____
0068	204.0220 Removing Inlets	339.000 EACH	_____.____	_____.____
0070	204.0245 Removing Storm Sewer (size) 0001. 12-Inch	12,262.000 LF	_____.____	_____.____
0072	204.0245 Removing Storm Sewer (size) 0002. 15-Inch	3,167.000 LF	_____.____	_____.____
0074	204.0245 Removing Storm Sewer (size) 0003. 18-Inch	1,163.000 LF	_____.____	_____.____
0076	204.0245 Removing Storm Sewer (size) 0004. 21-Inch	557.000 LF	_____.____	_____.____
0078	204.0245 Removing Storm Sewer (size) 0005. 24-Inch	2,066.000 LF	_____.____	_____.____
0080	204.0245 Removing Storm Sewer (size) 0006. 27-Inch	147.000 LF	_____.____	_____.____
0082	204.0245 Removing Storm Sewer (size) 0007. 30-Inch	822.000 LF	_____.____	_____.____
0084	204.0245 Removing Storm Sewer (size) 0008. 36-Inch	662.000 LF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0086	204.0245 Removing Storm Sewer (size) 0009. 54-Inch	33.000 LF	_____.____	_____.____
0088	204.0245 Removing Storm Sewer (size) 0010. 72-Inch	16.000 LF	_____.____	_____.____
0090	204.0245 Removing Storm Sewer (size) 0011. 19x30-Inch	3.000 LF	_____.____	_____.____
0092	204.0280 Sealing Pipes	29.000 EACH	_____.____	_____.____
0094	204.0291.S Abandoning Sewer	397.000 CY	_____.____	_____.____
0096	204.9001.S Removing Advance Flasher Assemblies Type 1	6.000 EACH	_____.____	_____.____
0098	204.9060.S Removing (item description) 0002. Removing Apron Endwall	3.000 EACH	_____.____	_____.____
0100	204.9060.S Removing (item description) 1001. Removing Distribution Center	5.000 EACH	_____.____	_____.____
0102	204.9060.S Removing (item description) 1002. Removing Lighting Units	158.000 EACH	_____.____	_____.____
0104	204.9060.S Removing (item description) 1003. Removing Sign Lighting	7.000 EACH	_____.____	_____.____
0106	204.9060.S Removing (item description) 1004. Removing Poles Wood 60-FT	8.000 EACH	_____.____	_____.____
0108	204.9060.S Removing (item description) 1005. Removing Poles Wood 60-FT and Floodlight	55.000 EACH	_____.____	_____.____
0110	204.9060.S Removing (item description) 1006. Removing Poles Wood 35-FT	2.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0112	204.9060.S Removing (item description) 1007. Removing Poles Wood 35-FT and Floodlight	3.000 EACH	_____.____	_____.____
0114	204.9060.S Removing (item description) 1008. Removing Underdeck Lighting	5.000 EACH	_____.____	_____.____
0116	204.9060.S Removing (item description) 1009. Removing Luminaries Underdeck Lighting	4.000 EACH	_____.____	_____.____
0118	204.9090.S Removing (item description) 0005. Removing Temporary Precast Trench Drain	2,355.000 LF	_____.____	_____.____
0120	204.9090.S Removing (item description) 0006. Removing Drain Slotted Vane	678.000 LF	_____.____	_____.____
0122	204.9090.S Removing (item description) 0100. Removing Sheet Pile Shoring	400.000 LF	_____.____	_____.____
0124	204.9105.S Removing (item description) 3001. Temporary Traffic Signal IH 41 SB on Ramp & W. North Avenue	LS	LUMP SUM	_____.____
0126	204.9105.S Removing (item description) 3002. Temporary Traffic Signals IH 41 NB on Ramp & W. North Avenue	LS	LUMP SUM	_____.____
0128	204.9105.S Removing (item description) 3101. Traffic Signals W. North Avenue & N. 116th Street	LS	LUMP SUM	_____.____
0130	205.0100 Excavation Common	411,558.000 CY	_____.____	_____.____
0132	205.0501.S Excavation, Hauling, and Disposal of Petroleum Contaminated Soil	11,992.000 TON	_____.____	_____.____
0134	206.1000 Excavation for Structures Bridges (structure) 0001. B-40-138	LS	LUMP SUM	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0136	206.1000 Excavation for Structures Bridges (structure) 0002. B-40-792	LS	LUMP SUM	_____.____
0138	206.1000 Excavation for Structures Bridges (structure) 0003. B-40-793	LS	LUMP SUM	_____.____
0140	206.1000 Excavation for Structures Bridges (structure) 0004. B-40-794	LS	LUMP SUM	_____.____
0142	206.1000 Excavation for Structures Bridges (structure) 0005. B-40-875	LS	LUMP SUM	_____.____
0144	206.1000 Excavation for Structures Bridges (structure) 0006. B-40-876	LS	LUMP SUM	_____.____
0146	206.1000 Excavation for Structures Bridges (structure) 0007. B-40-877	LS	LUMP SUM	_____.____
0148	206.1000 Excavation for Structures Bridges (structure) 0008. B-40-878	LS	LUMP SUM	_____.____
0150	206.1000 Excavation for Structures Bridges (structure) 0009. B-40-879	LS	LUMP SUM	_____.____
0152	206.3000 Excavation for Structures Retaining Walls (structure) 0001. R-40-567	LS	LUMP SUM	_____.____
0154	206.3000 Excavation for Structures Retaining Walls (structure) 0003. R-40-569	LS	LUMP SUM	_____.____
0156	206.3000 Excavation for Structures Retaining Walls (structure) 0005. R-40-622	LS	LUMP SUM	_____.____
0158	206.3000 Excavation for Structures Retaining Walls (structure) 0006. R-40-573	LS	LUMP SUM	_____.____
0160	206.3000 Excavation for Structures Retaining Walls (structure) 0007. R-40-576	LS	LUMP SUM	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0162	206.3000 Excavation for Structures Retaining Walls (structure) 0008. R-40-561	LS	LUMP SUM	_____.____
0164	206.3000 Excavation for Structures Retaining Walls (structure) 0009. R-40-564	LS	LUMP SUM	_____.____
0166	209.1100 Backfill Granular Grade 1	11,768.000 CY	_____.____	_____.____
0168	210.1100 Backfill Structure Type A	95.000 CY	_____.____	_____.____
0170	210.1500 Backfill Structure Type A	18,214.000 TON	_____.____	_____.____
0172	213.0100 Finishing Roadway (project) 0001. 1060-33-84	1.000 EACH	_____.____	_____.____
0174	305.0120 Base Aggregate Dense 1 1/4-Inch	139,850.000 TON	_____.____	_____.____
0176	310.0110 Base Aggregate Open-Graded	1,140.000 TON	_____.____	_____.____
0178	312.0110 Select Crushed Material	238,376.000 TON	_____.____	_____.____
0180	320.0155 Concrete Base 9-Inch	710.000 SY	_____.____	_____.____
0182	390.0403 Base Patching Concrete Shes	3,900.000 SY	_____.____	_____.____
0184	415.0410 Concrete Pavement Approach Slab	2,056.000 SY	_____.____	_____.____
0186	415.1410 Concrete Pavement Approach Slab HES	55.000 SY	_____.____	_____.____
0188	415.5110.S Concrete Pavement Joint Layout	1.000 LS	_____.____	_____.____
0190	416.0270 Concrete Driveway HES 7-Inch	1,357.000 SY	_____.____	_____.____
0192	416.0610 Drilled Tie Bars	2,982.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0194	416.0620 Drilled Dowel Bars	8,349.000 EACH	_____.____	_____.____
0196	416.1715 Concrete Pavement Repair SHES	2,080.000 SY	_____.____	_____.____
0198	416.1725 Concrete Pavement Replacement SHES	3,300.000 SY	_____.____	_____.____
0200	455.0605 Tack Coat	15,347.000 GAL	_____.____	_____.____
0202	460.2000 Incentive Density HMA Pavement	14,208.000 DOL	1.00000	14,208.00
0204	460.5223 HMA Pavement 3 LT 58-28 S	1,120.000 TON	_____.____	_____.____
0206	460.5224 HMA Pavement 4 LT 58-28 S	1,438.000 TON	_____.____	_____.____
0208	460.5225 HMA Pavement 5 LT 58-28 S	107.000 TON	_____.____	_____.____
0210	460.6223 HMA Pavement 3 MT 58-28 S	6,294.000 TON	_____.____	_____.____
0212	460.6224 HMA Pavement 4 MT 58-28 S	11,031.000 TON	_____.____	_____.____
0214	460.7424 HMA Pavement 4 HT 58-28 H	3,592.000 TON	_____.____	_____.____
0216	465.0120 Asphaltic Surface Driveways and Field Entrances	1,211.000 TON	_____.____	_____.____
0218	465.0125 Asphaltic Surface Temporary	26,041.000 TON	_____.____	_____.____
0220	495.1000.S Cold patch	50.000 TON	_____.____	_____.____
0222	501.1000.S Ice Hot Weather Concreting	120,021.000 LB	_____.____	_____.____
0224	502.0100 Concrete Masonry Bridges	8,215.000 CY	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0226	502.0110.S Concrete Masonry Soldier Pile Footings	1,702.000 CY	_____.____	_____.____
0228	502.3101 Expansion Device	332.000 LF	_____.____	_____.____
0230	502.3111.S Expansion Device Modular	54.000 LF	_____.____	_____.____
0232	502.3200 Protective Surface Treatment	4,652.000 SY	_____.____	_____.____
0234	502.3210 Pigmented Surface Sealer	4,264.000 SY	_____.____	_____.____
0236	502.4205 Adhesive Anchors No. 5 Bar	1,073.000 EACH	_____.____	_____.____
0238	502.4207 Adhesive Anchors No. 7 Bar	136.000 EACH	_____.____	_____.____
0240	503.0137 Prestressed Girder Type I 36W-Inch	11,675.000 LF	_____.____	_____.____
0242	503.0155 Prestressed Girder Type I 54W-Inch	15,942.000 LF	_____.____	_____.____
0244	504.0500 Concrete Masonry Retaining Walls	5,891.000 CY	_____.____	_____.____
0246	505.0400 Bar Steel Reinforcement HS Structures	1,991,815.000 LB	_____.____	_____.____
0248	505.0600 Bar Steel Reinforcement HS Coated Structures	3,441,315.000 LB	_____.____	_____.____
0250	505.0800.S Bar Steel Reinforcement HS Stainless Structures	12,204.000 LB	_____.____	_____.____
0252	505.0904 Bar Couplers No. 4	39.000 EACH	_____.____	_____.____
0254	505.0905 Bar Couplers No. 5	120.000 EACH	_____.____	_____.____
0256	505.0906 Bar Couplers No. 6	8.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0258	505.0908 Bar Couplers No. 8	24.000 EACH	_____.____	_____.____
0260	505.0910 Bar Couplers No. 10	126.000 EACH	_____.____	_____.____
0262	505.0911 Bar Couplers No. 11	550.000 EACH	_____.____	_____.____
0264	506.0105 Structural Steel Carbon	25,381.000 LB	_____.____	_____.____
0266	506.0605 Structural Steel HS	4,873,269.000 LB	_____.____	_____.____
0268	506.2605 Bearing Pads Elastomeric Non-Laminated	392.000 EACH	_____.____	_____.____
0270	506.2610 Bearing Pads Elastomeric Laminated	112.000 EACH	_____.____	_____.____
0272	506.3004 Welded Stud Shear Connectors 3/4x4-Inch	176.000 EACH	_____.____	_____.____
0274	506.3010 Welded Stud Shear Connectors 7/8x5-Inch	13,093.000 EACH	_____.____	_____.____
0276	506.3020 Welded Stud Shear Connectors 7/8x7-Inch	6,720.000 EACH	_____.____	_____.____
0278	506.4000 Steel Diaphragms (structure) 0002. B-40-792	9.000 EACH	_____.____	_____.____
0280	506.4000 Steel Diaphragms (structure) 0003. B-40-793	21.000 EACH	_____.____	_____.____
0282	506.4000 Steel Diaphragms (structure) 0004. B-40-794	24.000 EACH	_____.____	_____.____
0284	506.4000 Steel Diaphragms (structure) 0005. B-40-875	192.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0286	506.4000 Steel Diaphragms (structure) 0006. B-40-876	192.000 EACH	_____.____	_____.____
0288	506.4000 Steel Diaphragms (structure) 0007. B-40-138	28.000 EACH	_____.____	_____.____
0290	506.4000 Steel Diaphragms (structure) 0009. B-40-879	30.000 EACH	_____.____	_____.____
0292	506.5000 Bearing Assemblies Fixed (structure) 0001. B-40-138	8.000 EACH	_____.____	_____.____
0294	506.5000 Bearing Assemblies Fixed (structure) 0007. B-40-877	8.000 EACH	_____.____	_____.____
0296	506.6000 Bearing Assemblies Expansion (structure) 0005. B-40-875	26.000 EACH	_____.____	_____.____
0298	506.6000 Bearing Assemblies Expansion (structure) 0006. B-40-876	26.000 EACH	_____.____	_____.____
0300	506.6000 Bearing Assemblies Expansion (structure) 0007. B-40-877	8.000 EACH	_____.____	_____.____
0302	509.0301 Preparation Decks Type 1	4.000 SY	_____.____	_____.____
0304	509.0310.S Sawing Pavement Deck Preparation Areas	40.000 LF	_____.____	_____.____
0306	509.1500 Concrete Surface Repair	231.000 SF	_____.____	_____.____
0308	509.5100.S Polymer Overlay	78,923.000 SY	_____.____	_____.____
0310	511.1100 Temporary Shoring	10,580.000 SF	_____.____	_____.____
0312	511.1200 Temporary Shoring (structure) 0001. B-40-138	1,125.000 SF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0314	511.1200 Temporary Shoring (structure) 0002. B-40-879	1,126.000 SF	_____.____	_____.____
0316	511.1200 Temporary Shoring (structure) 0003. B-40-878	2,433.000 SF	_____.____	_____.____
0318	511.1200 Temporary Shoring (structure) 0005. B-40-875	2,360.000 SF	_____.____	_____.____
0320	511.1200 Temporary Shoring (structure) 0006. B-40-876	2,095.000 SF	_____.____	_____.____
0322	511.1200 Temporary Shoring (structure) 0020. R-40-622	3,350.000 SF	_____.____	_____.____
0324	511.1200 Temporary Shoring (structure) 0022. R-40-569	680.000 SF	_____.____	_____.____
0326	511.1200 Temporary Shoring (structure) 0024. R-40-570	1,220.000 SF	_____.____	_____.____
0328	511.1200 Temporary Shoring (structure) 0030. S-40-442	1,150.000 SF	_____.____	_____.____
0330	511.1300 Temporary Shoring (location) 0001. Sta. 413NS+91 to 416NS+89	7,419.000 SF	_____.____	_____.____
0332	511.1300 Temporary Shoring (location) 0002. Sta. 414NS+11 to 414NS+41	690.000 SF	_____.____	_____.____
0334	511.1300 Temporary Shoring (location) 0003. Sta. 414NS+20 to 416NS+94	6,802.000 SF	_____.____	_____.____
0336	513.2001 Railing Pipe	1,838.000 LF	_____.____	_____.____
0338	514.0450 Floor Drains Type WF	9.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0340	514.1000 Railroad Deck Drains System (railroad structure) 0001. B-40-878	LS	LUMP SUM	_____.____
0342	514.2608 Downspout 8-Inch	382.000 LF	_____.____	_____.____
0344	514.2625 Downspout 6-Inch	46.000 LF	_____.____	_____.____
0346	516.0500 Rubberized Membrane Waterproofing	989.000 SY	_____.____	_____.____
0348	517.0600 Painting Epoxy System (structure) 0001. B-40-877	LS	LUMP SUM	_____.____
0350	517.0600 Painting Epoxy System (structure) 0007. B-40-878	LS	LUMP SUM	_____.____
0352	517.0600 Painting Epoxy System (structure) 0014. R-40-569	LS	LUMP SUM	_____.____
0354	517.0600 Painting Epoxy System (structure) 0017. R-40-573	LS	LUMP SUM	_____.____
0356	517.0600 Painting Epoxy System (structure) 0018. R-40-576	LS	LUMP SUM	_____.____
0358	517.1010.S Concrete Staining (structure) 0001. B-40-792	4,290.000 SF	_____.____	_____.____
0360	517.1010.S Concrete Staining (structure) 0002. B-40-793	3,159.000 SF	_____.____	_____.____
0362	517.1010.S Concrete Staining (structure) 0003. B-40-794	5,144.000 SF	_____.____	_____.____
0364	517.1010.S Concrete Staining (structure) 0004. B-40-875	28,971.000 SF	_____.____	_____.____
0366	517.1010.S Concrete Staining (structure) 0005. B-40-876	27,303.000 SF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0368	517.1010.S Concrete Staining (structure) 0006. B-40-877	11,920.000 SF	_____.____	_____.____
0370	517.1010.S Concrete Staining (structure) 0007. B-40-878	10,365.000 SF	_____.____	_____.____
0372	517.1010.S Concrete Staining (structure) 0008. B-40-879	14,313.000 SF	_____.____	_____.____
0374	517.1010.S Concrete Staining (structure) 0016. R-40-561	6,000.000 SF	_____.____	_____.____
0376	517.1010.S Concrete Staining (structure) 0017. R-40-564	3,740.000 SF	_____.____	_____.____
0378	517.1010.S Concrete Staining (structure) 0018. R-40-567	30,560.000 SF	_____.____	_____.____
0380	517.1010.S Concrete Staining (structure) 0019. R-40-568	1,044.000 SF	_____.____	_____.____
0382	517.1010.S Concrete Staining (structure) 0020. R-40-569	4,355.000 SF	_____.____	_____.____
0384	517.1010.S Concrete Staining (structure) 0021. R-40-570	10,490.000 SF	_____.____	_____.____
0386	517.1010.S Concrete Staining (structure) 0022. R-40-572	1,450.000 SF	_____.____	_____.____
0388	517.1010.S Concrete Staining (structure) 0023. R-40-573	34,045.000 SF	_____.____	_____.____
0390	517.1010.S Concrete Staining (structure) 0024. R-40-576	18,565.000 SF	_____.____	_____.____
0392	517.1010.S Concrete Staining (structure) 0025. R-40-622	2,690.000 SF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0394	517.1010.S Concrete Staining (structure) 0026. R-40-632	2,102.000 SF	_____.____	_____.____
0396	517.1010.S Concrete Staining (structure) 0027. R-40-635	4,495.000 SF	_____.____	_____.____
0398	517.1010.S Concrete Staining (structure) 0030. S-40-67	900.000 SF	_____.____	_____.____
0400	517.1010.S Concrete Staining (structure) 0031. S-40-69	388.000 SF	_____.____	_____.____
0402	517.1010.S Concrete Staining (structure) 0032. S-40-70	882.000 SF	_____.____	_____.____
0404	517.1010.S Concrete Staining (structure) 0033. S-40-71	360.000 SF	_____.____	_____.____
0406	517.1010.S Concrete Staining (structure) 0034. S-40-73	360.000 SF	_____.____	_____.____
0408	517.1010.S Concrete Staining (structure) 0035. S-40-75	375.000 SF	_____.____	_____.____
0410	517.1010.S Concrete Staining (structure) 0036. S-40-77	360.000 SF	_____.____	_____.____
0412	517.1010.S Concrete Staining (structure) 0037. S-40-145	388.000 SF	_____.____	_____.____
0414	517.1010.S Concrete Staining (structure) 0038. S-40-442	910.000 SF	_____.____	_____.____
0416	517.1010.S Concrete Staining (structure) 0039. S-40-783	280.000 SF	_____.____	_____.____
0418	517.1010.S Concrete Staining (structure) 0040. S-40-784	285.000 SF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0420	517.1010.S Concrete Staining (structure) 0041. S-40-785	266.000 SF	_____.____	_____.____
0422	517.1010.S Concrete Staining (structure) 0042. S-40-786	266.000 SF	_____.____	_____.____
0424	517.1010.S Concrete Staining (structure) 0043. S-40-967	752.000 SF	_____.____	_____.____
0426	517.1015.S Concrete Staining Multi-Color (structure) 0001. B-40-792	440.000 SF	_____.____	_____.____
0428	517.1015.S Concrete Staining Multi-Color (structure) 0002. B-40-793	619.000 SF	_____.____	_____.____
0430	517.1015.S Concrete Staining Multi-Color (structure) 0003. B-40-794	619.000 SF	_____.____	_____.____
0432	517.1015.S Concrete Staining Multi-Color (structure) 0004. B-40-875	3,372.000 SF	_____.____	_____.____
0434	517.1015.S Concrete Staining Multi-Color (structure) 0005. B-40-876	3,639.000 SF	_____.____	_____.____
0436	517.1015.S Concrete Staining Multi-Color (structure) 0006. B-40-877	920.000 SF	_____.____	_____.____
0438	517.1015.S Concrete Staining Multi-Color (structure) 0010. R-40-561	4,360.000 SF	_____.____	_____.____
0440	517.1015.S Concrete Staining Multi-Color (structure) 0011. R-40-564	2,175.000 SF	_____.____	_____.____
0442	517.1015.S Concrete Staining Multi-Color (structure) 0013. R-40-568	615.000 SF	_____.____	_____.____
0444	517.1015.S Concrete Staining Multi-Color (structure) 0014. R-40-569	4,145.000 SF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0446	517.1015.S Concrete Staining Multi-Color (structure) 0015. R-40-570	5,905.000 SF	_____.____	_____.____
0448	517.1015.S Concrete Staining Multi-Color (structure) 0016. R-40-572	560.000 SF	_____.____	_____.____
0450	517.1015.S Concrete Staining Multi-Color (structure) 0017. R-40-632	1,102.000 SF	_____.____	_____.____
0452	517.1050.S Architectural Surface Treatment (structure) 0001. B-40-792	440.000 SF	_____.____	_____.____
0454	517.1050.S Architectural Surface Treatment (structure) 0002. B-40-793	619.000 SF	_____.____	_____.____
0456	517.1050.S Architectural Surface Treatment (structure) 0003. B-40-794	619.000 SF	_____.____	_____.____
0458	517.1050.S Architectural Surface Treatment (structure) 0004. B-40-875	3,372.000 SF	_____.____	_____.____
0460	517.1050.S Architectural Surface Treatment (structure) 0005. B-40-876	3,639.000 SF	_____.____	_____.____
0462	517.1050.S Architectural Surface Treatment (structure) 0006. B-40-877	920.000 SF	_____.____	_____.____
0464	517.1050.S Architectural Surface Treatment (structure) 0007. B-40-878	8,786.000 SF	_____.____	_____.____
0466	517.1050.S Architectural Surface Treatment (structure) 0016. R-40-561	4,360.000 SF	_____.____	_____.____
0468	517.1050.S Architectural Surface Treatment (structure) 0017. R-40-564	2,175.000 SF	_____.____	_____.____
0470	517.1050.S Architectural Surface Treatment (structure) 0018. R-40-567	22,850.000 SF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0472	517.1050.S Architectural Surface Treatment (structure) 0019. R-40-568	615.000 SF	_____.____	_____.____
0474	517.1050.S Architectural Surface Treatment (structure) 0020. R-40-569	4,145.000 SF	_____.____	_____.____
0476	517.1050.S Architectural Surface Treatment (structure) 0021. R-40-570	5,905.000 SF	_____.____	_____.____
0478	517.1050.S Architectural Surface Treatment (structure) 0022. R-40-572	560.000 SF	_____.____	_____.____
0480	517.1050.S Architectural Surface Treatment (structure) 0023. R-40-573	23,715.000 SF	_____.____	_____.____
0482	517.1050.S Architectural Surface Treatment (structure) 0024. R-40-576	15,225.000 SF	_____.____	_____.____
0484	517.1050.S Architectural Surface Treatment (structure) 0025. R-40-622	3,340.000 SF	_____.____	_____.____
0486	517.1050.S Architectural Surface Treatment (structure) 0026. R-40-632	1,102.000 SF	_____.____	_____.____
0488	517.1050.S Architectural Surface Treatment (structure) 0027. R-40-635	1,685.000 SF	_____.____	_____.____
0490	520.8000 Concrete Collars for Pipe	139.000 EACH	_____.____	_____.____
0492	522.1012 Apron Endwalls for Culvert Pipe Reinforced Concrete 12-Inch	1.000 EACH	_____.____	_____.____
0494	522.1018 Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch	2.000 EACH	_____.____	_____.____
0496	522.1024 Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch	7.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0498	522.2619 Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 19x30-Inch	1.000 EACH	_____.____	_____.____
0500	531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0001. N-40-82	15,960.000 SF	_____.____	_____.____
0502	531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0002. N-40-83	22,555.000 SF	_____.____	_____.____
0504	531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0003. N-40-84	25,530.000 SF	_____.____	_____.____
0506	531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0004. N-40-85	12,295.000 SF	_____.____	_____.____
0508	531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0005. N-40-86	6,295.000 SF	_____.____	_____.____
0510	531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0006. N-40-87	27,125.000 SF	_____.____	_____.____
0512	550.0010 Pre-Boring Unconsolidated Materials	1,230.000 LF	_____.____	_____.____
0514	550.0500 Pile Points	1,103.000 EACH	_____.____	_____.____
0516	550.1100 Piling Steel HP 10-Inch X 42 Lb	5,940.000 LF	_____.____	_____.____
0518	550.1120 Piling Steel HP 12-Inch X 53 Lb	39,730.000 LF	_____.____	_____.____
0520	550.2106 Piling CIP Concrete 10 3/4 X 0.365-Inch	1,880.000 LF	_____.____	_____.____
0522	601.0110 Concrete Curb Type D	386.000 LF	_____.____	_____.____
0524	601.0319 Concrete Curb & Gutter 19-Inch	2,542.000 LF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0526	601.0331 Concrete Curb & Gutter 31-Inch	16,591.000 LF	_____.____	_____.____
0528	601.0407 Concrete Curb & Gutter 18-Inch Type D	718.000 LF	_____.____	_____.____
0530	601.0409 Concrete Curb & Gutter 30-Inch Type A	634.000 LF	_____.____	_____.____
0532	601.0551 Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type A	584.000 LF	_____.____	_____.____
0534	601.0600 Concrete Curb Pedestrian	56.000 LF	_____.____	_____.____
0536	602.0410 Concrete Sidewalk 5-Inch	53,249.000 SF	_____.____	_____.____
0538	602.0515 Curb Ramp Detectable Warning Field Natural Patina	420.000 SF	_____.____	_____.____
0540	602.1500 Concrete Steps	16.000 SF	_____.____	_____.____
0542	603.1142 Concrete Barrier Type S42	35,288.000 LF	_____.____	_____.____
0544	603.1442 Concrete Barrier Type S42C	8,207.000 LF	_____.____	_____.____
0546	603.1456 Concrete Barrier Type S56C	375.000 LF	_____.____	_____.____
0548	603.3213 Concrete Barrier Transition Type F32SF to S36	3.000 EACH	_____.____	_____.____
0550	603.3413 Concrete Barrier Transition Type F32DF to S36	1.000 EACH	_____.____	_____.____
0552	603.3513 Concrete Barrier Transition Type S32 to S36	2.000 EACH	_____.____	_____.____
0554	603.3535 Concrete Barrier Transition Type S36 to S42	6.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0556	603.3675 Concrete Barrier Transition Type V51 to S42	1.000 EACH	_____.____	_____.____
0558	603.8000 Concrete Barrier Temporary Precast Delivered	86,934.000 LF	_____.____	_____.____
0560	603.8125 Concrete Barrier Temporary Precast Installed	138,124.000 LF	_____.____	_____.____
0562	604.0400 Slope Paving Concrete	356.000 SY	_____.____	_____.____
0564	604.0500 Slope Paving Crushed Aggregate	139.000 SY	_____.____	_____.____
0566	606.0100 Riprap Light	356.000 CY	_____.____	_____.____
0568	606.0200 Riprap Medium	1,875.000 CY	_____.____	_____.____
0570	608.0312 Storm Sewer Pipe Reinforced Concrete Class III 12-Inch	5,872.000 LF	_____.____	_____.____
0572	608.0315 Storm Sewer Pipe Reinforced Concrete Class III 15-Inch	2,216.000 LF	_____.____	_____.____
0574	608.0318 Storm Sewer Pipe Reinforced Concrete Class III 18-Inch	1,541.000 LF	_____.____	_____.____
0576	608.0321 Storm Sewer Pipe Reinforced Concrete Class III 21-Inch	11.000 LF	_____.____	_____.____
0578	608.0324 Storm Sewer Pipe Reinforced Concrete Class III 24-Inch	15,224.000 LF	_____.____	_____.____
0580	608.0330 Storm Sewer Pipe Reinforced Concrete Class III 30-Inch	2,494.000 LF	_____.____	_____.____
0582	608.0336 Storm Sewer Pipe Reinforced Concrete Class III 36-Inch	1,119.000 LF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0584	608.0342 Storm Sewer Pipe Reinforced Concrete Class III 42-Inch	7.000 LF	_____.____	_____.____
0586	608.0354 Storm Sewer Pipe Reinforced Concrete Class III 54-Inch	109.000 LF	_____.____	_____.____
0588	608.0360 Storm Sewer Pipe Reinforced Concrete Class III 60-Inch	198.000 LF	_____.____	_____.____
0590	608.0372 Storm Sewer Pipe Reinforced Concrete Class III 72-Inch	929.000 LF	_____.____	_____.____
0592	608.0412 Storm Sewer Pipe Reinforced Concrete Class IV 12-Inch	2,405.000 LF	_____.____	_____.____
0594	608.0415 Storm Sewer Pipe Reinforced Concrete Class IV 15-Inch	526.000 LF	_____.____	_____.____
0596	608.0418 Storm Sewer Pipe Reinforced Concrete Class IV 18-Inch	192.000 LF	_____.____	_____.____
0598	608.0424 Storm Sewer Pipe Reinforced Concrete Class IV 24-Inch	3,176.000 LF	_____.____	_____.____
0600	608.0430 Storm Sewer Pipe Reinforced Concrete Class IV 30-Inch	359.000 LF	_____.____	_____.____
0602	608.0436 Storm Sewer Pipe Reinforced Concrete Class IV 36-Inch	347.000 LF	_____.____	_____.____
0604	608.0442 Storm Sewer Pipe Reinforced Concrete Class IV 42-Inch	10.000 LF	_____.____	_____.____
0606	608.0454 Storm Sewer Pipe Reinforced Concrete Class IV 54-Inch	149.000 LF	_____.____	_____.____
0608	608.0472 Storm Sewer Pipe Reinforced Concrete Class IV 72-Inch	596.000 LF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0610	608.0512 Storm Sewer Pipe Reinforced Concrete Class V 12-Inch	194.000 LF	_____.____	_____.____
0612	608.0515 Storm Sewer Pipe Reinforced Concrete Class V 15-Inch	17.000 LF	_____.____	_____.____
0614	608.0518 Storm Sewer Pipe Reinforced Concrete Class V 18-Inch	68.000 LF	_____.____	_____.____
0616	608.0524 Storm Sewer Pipe Reinforced Concrete Class V 24-Inch	94.000 LF	_____.____	_____.____
0618	608.2348 Storm Sewer Pipe Reinforced Concrete Horizontal Elliptical Class HE-III 48x76-Inch	327.000 LF	_____.____	_____.____
0620	608.2419 Storm Sewer Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 19x30-Inch	187.000 LF	_____.____	_____.____
0622	611.0420 Reconstructing Manholes	22.000 EACH	_____.____	_____.____
0624	611.0430 Reconstructing Inlets	30.000 EACH	_____.____	_____.____
0626	611.0535 Manhole Covers Type J-Special	96.000 EACH	_____.____	_____.____
0628	611.0606 Inlet Covers Type B	3.000 EACH	_____.____	_____.____
0630	611.0612 Inlet Covers Type C	1.000 EACH	_____.____	_____.____
0632	611.0624 Inlet Covers Type H	97.000 EACH	_____.____	_____.____
0634	611.0627 Inlet Covers Type HM	2.000 EACH	_____.____	_____.____
0636	611.0642 Inlet Covers Type MS	81.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0638	611.0654 Inlet Covers Type V	203.000 EACH	_____.____	_____.____
0640	611.0663 Inlet Covers Type X	7.000 EACH	_____.____	_____.____
0642	611.2003 Manholes 3-FT Diameter	2.000 EACH	_____.____	_____.____
0644	611.2004 Manholes 4-FT Diameter	29.000 EACH	_____.____	_____.____
0646	611.2005 Manholes 5-FT Diameter	250.000 EACH	_____.____	_____.____
0648	611.2006 Manholes 6-FT Diameter	44.000 EACH	_____.____	_____.____
0650	611.2007 Manholes 7-FT Diameter	13.000 EACH	_____.____	_____.____
0652	611.2008 Manholes 8-FT Diameter	4.000 EACH	_____.____	_____.____
0654	611.3004 Inlets 4-FT Diameter	184.000 EACH	_____.____	_____.____
0656	611.3225 Inlets 2x2.5-FT	6.000 EACH	_____.____	_____.____
0658	611.3230 Inlets 2x3-FT	3.000 EACH	_____.____	_____.____
0660	611.3901 Inlets Median 1 Grate	19.000 EACH	_____.____	_____.____
0662	611.3902 Inlets Median 2 Grate	28.000 EACH	_____.____	_____.____
0664	611.8110 Adjusting Manhole Covers	6.000 EACH	_____.____	_____.____
0666	611.8115 Adjusting Inlet Covers	10.000 EACH	_____.____	_____.____
0668	611.8120.S Cover Plates Temporary	64.000 EACH	_____.____	_____.____
0670	611.9800.S Pipe Grates	5.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0672	612.0106 Pipe Underdrain 6-Inch	734.000 LF	_____.____	_____.____
0674	612.0206 Pipe Underdrain Unperforated 6-Inch	387.000 LF	_____.____	_____.____
0676	612.0406 Pipe Underdrain Wrapped 6-Inch	6,790.000 LF	_____.____	_____.____
0678	612.0806 Apron Endwalls for Underdrain Reinforced Concrete 6-Inch	3.000 EACH	_____.____	_____.____
0680	614.0150 Anchor Assemblies for Steel Plate Beam Guard	2.000 EACH	_____.____	_____.____
0682	614.0805 Crash Cushions Permanent Low Maintenance	22.000 EACH	_____.____	_____.____
0684	614.0905 Crash Cushions Temporary	4.000 EACH	_____.____	_____.____
0686	614.0950 Replacing Guardrail Posts and Blocks	30.000 EACH	_____.____	_____.____
0688	614.0951 Replacing Guardrail Rail and Hardware	300.000 LF	_____.____	_____.____
0690	614.2300 MGS Guardrail 3	98.000 LF	_____.____	_____.____
0692	614.2500 MGS Thrie Beam Transition	160.000 LF	_____.____	_____.____
0694	614.2610 MGS Guardrail Terminal EAT	4.000 EACH	_____.____	_____.____
0696	614.2620 MGS Guardrail Terminal Type 2	2.000 EACH	_____.____	_____.____
0698	616.0206 Fence Chain Link 6-FT	8,040.000 LF	_____.____	_____.____
0700	616.0329 Gates Chain Link (width) 0001. 12-FT	7.000 EACH	_____.____	_____.____
0702	616.0700.S Fence Safety	5,000.000 LF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0704	619.1000 Mobilization	1.000 EACH	_____.____	_____.____
0706	620.0300 Concrete Median Sloped Nose	942.000 SF	_____.____	_____.____
0708	623.0200 Dust Control Surface Treatment	243.000 SY	_____.____	_____.____
0710	624.0100 Water	2,228.000 MGAL	_____.____	_____.____
0712	627.0200 Mulching	10,765.000 SY	_____.____	_____.____
0714	628.1104 Erosion Bales	400.000 EACH	_____.____	_____.____
0716	628.1504 Silt Fence	18,155.000 LF	_____.____	_____.____
0718	628.1520 Silt Fence Maintenance	21,269.000 LF	_____.____	_____.____
0720	628.1905 Mobilizations Erosion Control	43.000 EACH	_____.____	_____.____
0722	628.1910 Mobilizations Emergency Erosion Control	40.000 EACH	_____.____	_____.____
0724	628.2004 Erosion Mat Class I Type B	37,469.000 SY	_____.____	_____.____
0726	628.2027 Erosion Mat Class II Type C	92,450.000 SY	_____.____	_____.____
0728	628.5505 Polyethylene Sheeting	2,000.000 SY	_____.____	_____.____
0730	628.6505 Soil Stabilizer Type A	1.000 ACRE	_____.____	_____.____
0732	628.6510 Soil Stabilizer Type B	6.000 ACRE	_____.____	_____.____
0734	628.7005 Inlet Protection Type A	787.000 EACH	_____.____	_____.____
0736	628.7010 Inlet Protection Type B	156.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0738	628.7015 Inlet Protection Type C	55.000 EACH	_____.____	_____.____
0740	628.7020 Inlet Protection Type D	1,005.000 EACH	_____.____	_____.____
0742	628.7504 Temporary Ditch Checks	270.000 LF	_____.____	_____.____
0744	628.7560 Tracking Pads	40.000 EACH	_____.____	_____.____
0746	628.7570 Rock Bags	630.000 EACH	_____.____	_____.____
0748	629.0210 Fertilizer Type B	108.000 CWT	_____.____	_____.____
0750	630.0120 Seeding Mixture No. 20	6,965.000 LB	_____.____	_____.____
0752	630.0200 Seeding Temporary	2,389.000 LB	_____.____	_____.____
0754	630.0500 Seed Water	2,627.000 MGAL	_____.____	_____.____
0756	631.0300 Sod Water	132.000 MGAL	_____.____	_____.____
0758	631.1000 Sod Lawn	7,094.000 SY	_____.____	_____.____
0760	631.1100 Sod Erosion Control	100.000 SY	_____.____	_____.____
0762	633.1000 Delineators Barrier Wall	500.000 EACH	_____.____	_____.____
0764	633.5200 Markers Culvert End	14.000 EACH	_____.____	_____.____
0766	634.0618 Posts Wood 4x6-Inch X 18-FT	102.000 EACH	_____.____	_____.____
0768	634.0620 Posts Wood 4x6-Inch X 20-FT	3.000 EACH	_____.____	_____.____
0770	634.0622 Posts Wood 4x6-Inch X 22-FT	44.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0772	634.0816 Posts Tubular Steel 2x2-Inch X 16-FT	114.000 EACH	_____.____	_____.____
0774	634.0885 Posts Tubular Steel 2x2-Inch X 8.5-FT	4.000 EACH	_____.____	_____.____
0776	635.0200 Sign Supports Structural Steel HS	11,700.000 LB	_____.____	_____.____
0778	635.0300 Sign Supports Replacing Base Connection Bolts	2.000 EACH	_____.____	_____.____
0780	636.0100 Sign Supports Concrete Masonry	463.600 CY	_____.____	_____.____
0782	636.0500 Sign Supports Steel Reinforcement	2,650.000 LB	_____.____	_____.____
0784	636.1000 Sign Supports Steel Reinforcement HS	34,895.000 LB	_____.____	_____.____
0786	636.1500 Sign Supports Steel Coated Reinforcement HS	61,370.000 LB	_____.____	_____.____
0788	637.1220 Signs Type I Reflective SH	2,932.000 SF	_____.____	_____.____
0790	637.1230 Signs Type I Reflective F	122.000 SF	_____.____	_____.____
0792	637.2210 Signs Type II Reflective H	2,297.260 SF	_____.____	_____.____
0794	637.2215 Signs Type II Reflective H Folding	152.420 SF	_____.____	_____.____
0796	637.2230 Signs Type II Reflective F	1,281.500 SF	_____.____	_____.____
0798	638.2101 Moving Signs Type I	21.000 EACH	_____.____	_____.____
0800	638.2102 Moving Signs Type II	53.000 EACH	_____.____	_____.____
0802	638.2601 Removing Signs Type I	17.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0804	638.2602 Removing Signs Type II	222.000 EACH	_____.____	_____.____
0806	638.3000 Removing Small Sign Supports	153.000 EACH	_____.____	_____.____
0808	638.3100 Removing Structural Steel Sign Supports	29.000 EACH	_____.____	_____.____
0810	638.3150 Removing Overhead Sign Supports Cantilever (structure) 0001. S-40-233	1.000 EACH	_____.____	_____.____
0812	638.3150 Removing Overhead Sign Supports Cantilever (structure) 0002. S-40-234	1.000 EACH	_____.____	_____.____
0814	638.3150 Removing Overhead Sign Supports Cantilever (structure) 0003. S-40-235	1.000 EACH	_____.____	_____.____
0816	638.3150 Removing Overhead Sign Supports Cantilever (structure) 0004. S-40-236	1.000 EACH	_____.____	_____.____
0818	638.3150 Removing Overhead Sign Supports Cantilever (structure) 0005. S-40-281	1.000 EACH	_____.____	_____.____
0820	638.3150 Removing Overhead Sign Supports Cantilever (structure) 0006. S-40-354	1.000 EACH	_____.____	_____.____
0822	638.3150 Removing Overhead Sign Supports Cantilever (structure) 0008. S-40-378	1.000 EACH	_____.____	_____.____
0824	638.3150 Removing Overhead Sign Supports Cantilever (structure) 0009. S-40-792	1.000 EACH	_____.____	_____.____
0826	638.3155 Removing Overhead Sign Supports Full Span (structure) 0007. S-40-355	1.000 EACH	_____.____	_____.____
0828	641.0100 Sign Bridge Single Pole Sign Support One Sign (structure) 0001. S-40-784	LS	LUMP SUM	_____.____
0830	641.0100 Sign Bridge Single Pole Sign Support One Sign (structure) 0002. S-40-785	LS	LUMP SUM	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0832	641.0100 Sign Bridge Single Pole Sign Support One Sign (structure) 0003. S-40-786	LS	LUMP SUM	_____.____
0834	641.0600 Sign Bridge Single Pole Sign Support Two Signs (structure) 0001. S-40-783	LS	LUMP SUM	_____.____
0836	641.1200 Sign Bridge Cantilevered (structure) 0001. S-40-69	LS	LUMP SUM	_____.____
0838	641.1200 Sign Bridge Cantilevered (structure) 0002. S-40-71	LS	LUMP SUM	_____.____
0840	641.1200 Sign Bridge Cantilevered (structure) 0004. S-40-75	LS	LUMP SUM	_____.____
0842	641.1200 Sign Bridge Cantilevered (structure) 0005. S-40-77	LS	LUMP SUM	_____.____
0844	641.1200 Sign Bridge Cantilevered (structure) 0006. S-40-145	LS	LUMP SUM	_____.____
0846	641.1200 Sign Bridge Cantilevered (structure) 0007. S-40-967	LS	LUMP SUM	_____.____
0848	641.1200 Sign Bridge Cantilevered (structure) 0009. S-40-73	LS	LUMP SUM	_____.____
0850	641.6600 Sign Bridge (structure) 0001. S-40-67	LS	LUMP SUM	_____.____
0852	641.6600 Sign Bridge (structure) 0002. S-40-70	LS	LUMP SUM	_____.____
0854	641.6600 Sign Bridge (structure) 0003. S-40-442	LS	LUMP SUM	_____.____
0856	641.8100 Overhead Sign Support (structure) 0001. S-40-972	LS	LUMP SUM	_____.____
0858	641.8100 Overhead Sign Support (structure) 0002. S-40-970	LS	LUMP SUM	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0860	641.8100 Overhead Sign Support (structure) 0003. S-40-968	LS	LUMP SUM	_____.____
0862	641.8100 Overhead Sign Support (structure) 0004. S-40-799	LS	LUMP SUM	_____.____
0864	641.8100 Overhead Sign Support (structure) 0005. S-40-798	LS	LUMP SUM	_____.____
0866	641.8100 Overhead Sign Support (structure) 0006. S-40-969	LS	LUMP SUM	_____.____
0868	643.0300 Traffic Control Drums	623,655.000 DAY	_____.____	_____.____
0870	643.0410 Traffic Control Barricades Type II	6,150.000 DAY	_____.____	_____.____
0872	643.0420 Traffic Control Barricades Type III	56,684.000 DAY	_____.____	_____.____
0874	643.0500 Traffic Control Flexible Tubular Marker Posts	45.000 EACH	_____.____	_____.____
0876	643.0600 Traffic Control Flexible Tubular Marker Bases	45.000 EACH	_____.____	_____.____
0878	643.0705 Traffic Control Warning Lights Type A	97,988.000 DAY	_____.____	_____.____
0880	643.0715 Traffic Control Warning Lights Type C	107,419.000 DAY	_____.____	_____.____
0882	643.0800 Traffic Control Arrow Boards	11,165.000 DAY	_____.____	_____.____
0884	643.0900 Traffic Control Signs	506,843.000 DAY	_____.____	_____.____
0886	643.0910 Traffic Control Covering Signs Type I	754.000 EACH	_____.____	_____.____
0888	643.0920 Traffic Control Covering Signs Type II	1,480.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0890	643.1000 Traffic Control Signs Fixed Message	3,000.500 SF	_____.____	_____.____
0892	643.1050 Traffic Control Signs PCMS	8,414.000 DAY	_____.____	_____.____
0894	643.1100.S Dynamic Late Merge System	1,694.000 DAY	_____.____	_____.____
0896	643.4100.S Traffic Control Interim Lane Closure	3,290.000 EACH	_____.____	_____.____
0898	643.5000 Traffic Control	1.000 EACH	_____.____	_____.____
0900	644.1410 Temporary Pedestrian Surface Asphalt	1,000.000 SF	_____.____	_____.____
0902	644.1430 Temporary Pedestrian Surface Plate	500.000 SF	_____.____	_____.____
0904	644.1601 Temporary Pedestrian Curb Ramp	10.000 DAY	_____.____	_____.____
0906	644.1810 Temporary Pedestrian Barricade	500.000 LF	_____.____	_____.____
0908	645.0111 Geotextile Type DF Schedule A	852.000 SY	_____.____	_____.____
0910	645.0112 Geotextile Type DF Schedule B	1,600.000 SY	_____.____	_____.____
0912	645.0120 Geotextile Type HR	2,903.000 SY	_____.____	_____.____
0914	645.0130 Geotextile Type R	1,230.000 SY	_____.____	_____.____
0916	645.0140 Geotextile Type SAS	2,821.000 SY	_____.____	_____.____
0918	645.0220 Geogrid Type SR	10,000.000 SY	_____.____	_____.____
0920	646.1020 Marking Line Epoxy 4-Inch	89,103.000 LF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0922	646.1040 Marking Line Grooved Wet Ref Epoxy 4-Inch	50,282.000 LF	_____.____	_____.____
0924	646.1041.S Marking Replace Line Wet Reflective Epoxy 4-Inch	140,220.000 LF	_____.____	_____.____
0926	646.1546.S Marking Replace Line Contrast Wet Reflective Epoxy 4-Inch	56,377.000 LF	_____.____	_____.____
0928	646.1555 Marking Line Grooved Contrast Permanent Tape 4-Inch	20,777.000 LF	_____.____	_____.____
0930	646.3020 Marking Line Epoxy 8-Inch	557.000 LF	_____.____	_____.____
0932	646.3546.S Marking Replace Line Contrast Wet Reflective Epoxy 8-Inch	63,499.000 LF	_____.____	_____.____
0934	646.3555 Marking Line Grooved Contrast Permanent Tape 8-Inch	20,712.000 LF	_____.____	_____.____
0936	646.5020 Marking Arrow Epoxy	139.000 EACH	_____.____	_____.____
0938	646.5120 Marking Word Epoxy	51.000 EACH	_____.____	_____.____
0940	646.5220 Marking Symbol Epoxy	33.000 EACH	_____.____	_____.____
0942	646.6120 Marking Stop Line Epoxy 18-Inch	1,014.000 LF	_____.____	_____.____
0944	646.7120 Marking Diagonal Epoxy 12-Inch	11,688.000 LF	_____.____	_____.____
0946	646.7220 Marking Chevron Epoxy 24-Inch	8,478.000 LF	_____.____	_____.____
0948	646.7420 Marking Crosswalk Epoxy Transverse Line 6-Inch	2,438.000 LF	_____.____	_____.____
0950	646.8120 Marking Curb Epoxy	416.000 LF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0952	646.8220 Marking Island Nose Epoxy	19.000 EACH	_____.____	_____.____
0954	646.8320 Marking Parking Stall Epoxy	152.000 LF	_____.____	_____.____
0956	646.9000 Marking Removal Line 4-Inch	120,000.000 LF	_____.____	_____.____
0958	646.9010 Marking Removal Line Water Blasting 4-Inch	88,274.000 LF	_____.____	_____.____
0960	646.9310 Marking Removal Special Marking Water Blasting	2.000 EACH	_____.____	_____.____
0962	649.0105 Temporary Marking Line Paint 4-Inch	19,000.000 LF	_____.____	_____.____
0964	649.0120 Temporary Marking Line Epoxy 4-Inch	360,000.000 LF	_____.____	_____.____
0966	649.0150 Temporary Marking Line Removable Tape 4-Inch	53,301.000 LF	_____.____	_____.____
0968	649.0205 Temporary Marking Line Paint 8-Inch	675.000 LF	_____.____	_____.____
0970	649.0220 Temporary Marking Line Epoxy 8-Inch	13,500.000 LF	_____.____	_____.____
0972	649.0250 Temporary Marking Line Removable Tape 8-Inch	5,898.000 LF	_____.____	_____.____
0974	649.0520 Temporary Marking Arrow Epoxy	10.000 EACH	_____.____	_____.____
0976	649.0760 Temporary Marking Raised Pavement Marker Type I	100.000 EACH	_____.____	_____.____
0978	652.0125 Conduit Rigid Metallic 2-Inch	1,203.000 LF	_____.____	_____.____
0980	652.0135 Conduit Rigid Metallic 3-Inch	28.000 LF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0982	652.0210 Conduit Rigid Nonmetallic Schedule 40 1-Inch	235.000 LF	_____.____	_____.____
0984	652.0225 Conduit Rigid Nonmetallic Schedule 40 2-Inch	69,695.000 LF	_____.____	_____.____
0986	652.0235 Conduit Rigid Nonmetallic Schedule 40 3-Inch	7,079.000 LF	_____.____	_____.____
0988	652.0615 Conduit Special 3-Inch	675.000 LF	_____.____	_____.____
0990	652.0700.S Install Conduit into Existing Item	8.000 EACH	_____.____	_____.____
0992	652.0800 Conduit Loop Detector	3,290.000 LF	_____.____	_____.____
0994	653.0135 Pull Boxes Steel 24x36-Inch	7.000 EACH	_____.____	_____.____
0996	653.0140 Pull Boxes Steel 24x42-Inch	131.000 EACH	_____.____	_____.____
0998	653.0220 Junction Boxes 18x6x6-Inch	17.000 EACH	_____.____	_____.____
1000	653.0222 Junction Boxes 18x12x6-Inch	27.000 EACH	_____.____	_____.____
1002	653.0905 Removing Pull Boxes	90.000 EACH	_____.____	_____.____
1004	654.0101 Concrete Bases Type 1	23.000 EACH	_____.____	_____.____
1006	654.0102 Concrete Bases Type 2	4.000 EACH	_____.____	_____.____
1008	654.0105 Concrete Bases Type 5	146.000 EACH	_____.____	_____.____
1010	654.0106 Concrete Bases Type 6	2.000 EACH	_____.____	_____.____
1012	654.0110 Concrete Bases Type 10	8.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1014	654.0111 Concrete Bases Type 11	7.000 EACH	_____.____	_____.____
1016	654.0217 Concrete Control Cabinet Bases Type 9 Special	4.000 EACH	_____.____	_____.____
1018	654.0230 Concrete Control Cabinet Bases Type L30	3.000 EACH	_____.____	_____.____
1020	654.1150 Concrete Bases Camera Pole 50-FT	3.000 EACH	_____.____	_____.____
1022	654.1239 Concrete Control Cabinet Bases ITS	3.000 EACH	_____.____	_____.____
1024	655.0122 Cable In Duct 3-2 AWG	85.000 LF	_____.____	_____.____
1026	655.0124 Cable In Duct 3-4 AWG	610.000 LF	_____.____	_____.____
1028	655.0210 Cable Traffic Signal 3-14 AWG	2,307.000 LF	_____.____	_____.____
1030	655.0230 Cable Traffic Signal 5-14 AWG	2,808.000 LF	_____.____	_____.____
1032	655.0240 Cable Traffic Signal 7-14 AWG	3,667.000 LF	_____.____	_____.____
1034	655.0260 Cable Traffic Signal 12-14 AWG	5,192.000 LF	_____.____	_____.____
1036	655.0320 Cable Type UF 2-10 AWG Grounded	2,083.000 LF	_____.____	_____.____
1038	655.0510 Electrical Wire Traffic Signals 12 AWG	21,105.000 LF	_____.____	_____.____
1040	655.0515 Electrical Wire Traffic Signals 10 AWG	5,167.000 LF	_____.____	_____.____
1042	655.0610 Electrical Wire Lighting 12 AWG	34,845.000 LF	_____.____	_____.____
1044	655.0615 Electrical Wire Lighting 10 AWG	5,426.000 LF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1046	655.0620 Electrical Wire Lighting 8 AWG	55,970.000 LF	_____.____	_____.____
1048	655.0625 Electrical Wire Lighting 6 AWG	22,375.000 LF	_____.____	_____.____
1050	655.0630 Electrical Wire Lighting 4 AWG	82,380.000 LF	_____.____	_____.____
1052	655.0635 Electrical Wire Lighting 2 AWG	38,210.000 LF	_____.____	_____.____
1054	655.0640 Electrical Wire Lighting 1 AWG	90.000 LF	_____.____	_____.____
1056	655.0700 Loop Detector Lead In Cable	17,528.000 LF	_____.____	_____.____
1058	655.0800 Loop Detector Wire	12,549.000 LF	_____.____	_____.____
1060	655.0900 Traffic Signal EVP Detector Cable	2,307.000 LF	_____.____	_____.____
1062	656.0200 Electrical Service Meter Breaker Pedestal (location) 2001. RM-40-0026	LS	LUMP SUM	_____.____
1064	656.0200 Electrical Service Meter Breaker Pedestal (location) 2002. RM-40-0104	LS	LUMP SUM	_____.____
1066	656.0200 Electrical Service Meter Breaker Pedestal (location) 2003. RM-40-0103	LS	LUMP SUM	_____.____
1068	656.0200 Electrical Service Meter Breaker Pedestal (location) 2004. CCTV-40-0038	LS	LUMP SUM	_____.____
1070	656.0200 Electrical Service Meter Breaker Pedestal (location) 2005. DMS-40-0037	LS	LUMP SUM	_____.____
1072	656.0200 Electrical Service Meter Breaker Pedestal (location) 3001. (IH 41 SB on Ramp & W. North Avenue)	LS	LUMP SUM	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1074	656.0200 Electrical Service Meter Breaker Pedestal (location) 3002. (IH 41 NB on Ramp & W. North Avenue)	LS	LUMP SUM	_____.____
1076	656.0200 Electrical Service Meter Breaker Pedestal (location) 3101. (W. North Avenue & N. 116TH Street)	LS	LUMP SUM	_____.____
1078	656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 1001. HL-40-UC	LS	LUMP SUM	_____.____
1080	656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 1002. HL-40-NA	LS	LUMP SUM	_____.____
1082	656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 1003. HL-40-BS	LS	LUMP SUM	_____.____
1084	656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 1004. H	LS	LUMP SUM	_____.____
1086	656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 1005. 88	LS	LUMP SUM	_____.____
1088	656.0500 Electrical Service Breaker Disconnect Box (location) 2001. RM-40-0026	LS	LUMP SUM	_____.____
1090	656.0500 Electrical Service Breaker Disconnect Box (location) 2002. RM-40-0104	LS	LUMP SUM	_____.____
1092	656.0500 Electrical Service Breaker Disconnect Box (location) 2003. RM-40-0103	LS	LUMP SUM	_____.____
1094	656.0500 Electrical Service Breaker Disconnect Box (location) 2004. CCTV-40-0038	LS	LUMP SUM	_____.____
1096	656.0500 Electrical Service Breaker Disconnect Box (location) 2005. CCTV-40-0039	LS	LUMP SUM	_____.____
1098	656.0500 Electrical Service Breaker Disconnect Box (location) 2006. DMS-40-0037	LS	LUMP SUM	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1100	657.0100 Pedestal Bases	14.000 EACH	_____.____	_____.____
1102	657.0210 Transformer Bases Breakaway 15-17 Inch Bolt Circle	46.000 EACH	_____.____	_____.____
1104	657.0255 Transformer Bases Breakaway 11 1/2-Inch Bolt Circle	102.000 EACH	_____.____	_____.____
1106	657.0305 Poles Type 2	2.000 EACH	_____.____	_____.____
1108	657.0310 Poles Type 3	2.000 EACH	_____.____	_____.____
1110	657.0322 Poles Type 5-Aluminum	146.000 EACH	_____.____	_____.____
1112	657.0327 Poles Type 6-Aluminum	2.000 EACH	_____.____	_____.____
1114	657.0375 Poles Type A	51.000 EACH	_____.____	_____.____
1116	657.0420 Traffic Signal Standards Aluminum 13-FT	1.000 EACH	_____.____	_____.____
1118	657.0425 Traffic Signal Standards Aluminum 15-FT	8.000 EACH	_____.____	_____.____
1120	657.0430 Traffic Signal Standards Aluminum 10-FT	5.000 EACH	_____.____	_____.____
1122	657.0609 Luminaire Arms Single Member 4-Inch Clamp 6-FT	2.000 EACH	_____.____	_____.____
1124	657.0610 Luminaire Arms Single Member 4 1/2-Inch Clamp 6-FT	106.000 EACH	_____.____	_____.____
1126	657.0620 Luminaire Arms Single Member 6-Inch Clamp 4-FT	144.000 EACH	_____.____	_____.____
1128	657.6005 Anchor Assemblies Light Poles on Structures	18.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1130	658.0171 Traffic Signal Face 1S 12-Inch	2.000 EACH	_____.____	_____.____
1132	658.0173 Traffic Signal Face 3S 12-Inch	25.000 EACH	_____.____	_____.____
1134	658.0174 Traffic Signal Face 4S 12-Inch	19.000 EACH	_____.____	_____.____
1136	658.0416 Pedestrian Signal Face 16-Inch	16.000 EACH	_____.____	_____.____
1138	658.0500 Pedestrian Push Buttons	19.000 EACH	_____.____	_____.____
1140	658.5069 Signal Mounting Hardware (location) 3001. (IH 41 SB on Ramp & W. North Avenue)	LS	LUMP SUM	_____.____
1142	658.5069 Signal Mounting Hardware (location) 3002. (IH 41 NB on Ramp & W. North Avenue)	LS	LUMP SUM	_____.____
1144	658.5069 Signal Mounting Hardware (location) 3101. (W. North Avenue and N. 116TH Street)	LS	LUMP SUM	_____.____
1146	659.0600 Underdeck Lighting (location) 1001. IH 41 (Meinecke Avenue Bridge)	LS	LUMP SUM	_____.____
1148	659.0600 Underdeck Lighting (location) 1002. IH 41 (Center Street Bridge)	LS	LUMP SUM	_____.____
1150	659.0600 Underdeck Lighting (location) 1003. STH 100 (IH 41 NB Bridge)	LS	LUMP SUM	_____.____
1152	659.0600 Underdeck Lighting (location) 1004. STH 100 (IH 41 SB Bridge)	LS	LUMP SUM	_____.____
1154	659.0600 Underdeck Lighting (location) 1005. North Avenue (IH 41 NB Bridge)	LS	LUMP SUM	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1156	659.0600 Underdeck Lighting (location) 1006. North Avenue (IH 41 SB Bridge)	LS	LUMP SUM	_____.____
1158	659.0700 Lighting Units Walkway	7.000 EACH	_____.____	_____.____
1160	659.1115 Luminaires Utility LED A	23.000 EACH	_____.____	_____.____
1162	659.1125 Luminaires Utility LED C	142.000 EACH	_____.____	_____.____
1164	659.1130 Luminaires Utility LED D	102.000 EACH	_____.____	_____.____
1166	659.1215 Luminaires Underdeck LED C	20.000 EACH	_____.____	_____.____
1168	659.2230 Lighting Control Cabinets 240/480 30-Inch	3.000 EACH	_____.____	_____.____
1170	662.1030.S Ramp Closure Gates 30-FT	1.000 EACH	_____.____	_____.____
1172	662.1037.S Ramp Closure Gates 37-FT	3.000 EACH	_____.____	_____.____
1174	662.1040.S Ramp Closure Gates 40-FT	2.000 EACH	_____.____	_____.____
1176	670.0100 Field System Integrator 2001. FTMS	LS	LUMP SUM	_____.____
1178	670.0100 Field System Integrator 3001. W. North Avenue Interconnect	LS	LUMP SUM	_____.____
1180	670.0200 ITS Documentation 2001. FTMS	LS	LUMP SUM	_____.____
1182	670.0200 ITS Documentation 3001. W. North Avenue Interconnect	LS	LUMP SUM	_____.____
1184	671.0132 Conduit HDPE 3-Duct 2-Inch	8,930.000 LF	_____.____	_____.____
1186	673.0105 Communication Vault Type 1	13.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1188	673.0200.S Install ITS Field Cabinet	3.000 EACH	_____.____	_____.____
1190	673.0225.S Install Pole Mounted Cabinet	4.000 EACH	_____.____	_____.____
1192	674.0200 Cable Microwave Detector	9,770.000 LF	_____.____	_____.____
1194	674.0300 Remove Cable	13,035.000 LF	_____.____	_____.____
1196	675.0100 Install Controller Ramp Meter Processor Assembly	3.000 EACH	_____.____	_____.____
1198	675.0300 Install Mounted Controller Microwave Detector Assembly	12.000 EACH	_____.____	_____.____
1200	677.0150 Install Camera Pole 50-FT	3.000 EACH	_____.____	_____.____
1202	677.0200 Install Camera Assembly	3.000 EACH	_____.____	_____.____
1204	677.9051.S Removing 50-FT Camera Pole	2.000 EACH	_____.____	_____.____
1206	677.9200.S Removing CCTV Camera	2.000 EACH	_____.____	_____.____
1208	678.0006 Install Fiber Optic Cable Outdoor Plant 6-CT	8,168.000 LF	_____.____	_____.____
1210	678.0072 Install Fiber Optic Cable Outdoor Plant 72-CT	13,965.000 LF	_____.____	_____.____
1212	678.0100.S Install Overhead Freeway DMS Full Matrix	1.000 EACH	_____.____	_____.____
1214	678.0300 Fiber Optic Splice	444.000 EACH	_____.____	_____.____
1216	678.0400 Fiber Optic Termination	62.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1218	678.0500 Communication System Testing	LS	LUMP SUM	_____._____
1220	678.0500 Communication System Testing 3001. W. North Avenue Interconnect	LS	LUMP SUM	_____._____
1222	678.0600 Install Ethernet Switches	9.000 EACH	_____._____	_____._____
1224	690.0150 Sawing Asphalt	3,220.000 LF	_____._____	_____._____
1226	690.0250 Sawing Concrete	56,762.000 LF	_____._____	_____._____
1228	715.0415 Incentive Strength Concrete Pavement	135,340.000 DOL	1.00000	135,340.00
1230	715.0502 Incentive Strength Concrete Structures	22,000.000 DOL	1.00000	22,000.00
1232	715.0603 Incentive Strength Concrete Barrier	28,000.000 DOL	1.00000	28,000.00
1234	740.0440 Incentive IRI Ride	42,765.000 DOL	1.00000	42,765.00
1236	801.0117 Railroad Flagging Reimbursement	800,000.000 DOL	1.00000	800,000.00
1238	ASP.1T0A On-the-Job Training Apprentice at $5.00/HR	11,000.000 HRS	5.00000	55,000.00
1240	ASP.1T0G On-the-Job Training Graduate at $5.00/HR	20,700.000 HRS	5.00000	103,500.00
1242	SPV.0035 Special 0001. EBS Excavation	14,105.000 CY	_____._____	_____._____
1244	SPV.0035 Special 0002. EBS Backfill	14,105.000 CY	_____._____	_____._____
1246	SPV.0035 Special 0003. Excavation, Hauling, and Reuse of Low-Level Contaminated Soil	12,310.000 CY	_____._____	_____._____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1248	SPV.0035 Special 0800. Backfill Controlled Low Strength UPRR	250.000 CY	_____.____	_____.____
1250	SPV.0035 Special 4000. HPC Masonry Structures	8,768.000 CY	_____.____	_____.____
1252	SPV.0035 Special 4010. Rapid Set Deck Repair	4.000 CY	_____.____	_____.____
1254	SPV.0035 Special 4020. Lightweight Foamed Concrete Fill	402.000 CY	_____.____	_____.____
1256	SPV.0045 Special 0900. Portable Speed Trailer	1,766.000 DAY	_____.____	_____.____
1258	SPV.0060 Special 0101. Concrete Barrier Transition Type G1	1.000 EACH	_____.____	_____.____
1260	SPV.0060 Special 0102. Concrete Barrier Transition Type G2	1.000 EACH	_____.____	_____.____
1262	SPV.0060 Special 0103. Concrete Barrier Transition Type G3	1.000 EACH	_____.____	_____.____
1264	SPV.0060 Special 0104. Concrete Barrier Transition Type G4	1.000 EACH	_____.____	_____.____
1266	SPV.0060 Special 0105. Concrete Barrier Transition Type G5	2.000 EACH	_____.____	_____.____
1268	SPV.0060 Special 0110. Concrete Barrier Transition Type M1	1.000 EACH	_____.____	_____.____
1270	SPV.0060 Special 0112. Concrete Barrier Transition Type S42C to S56C	2.000 EACH	_____.____	_____.____
1272	SPV.0060 Special 0115. Concrete Barrier Type S42 End Anchor	51.000 EACH	_____.____	_____.____
1274	SPV.0060 Special 0120. Mobilizations Emergency Pavement Repair	20.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1276	SPV.0060 Special 0125. Section Corner Monuments	1.000 EACH	_____.____	_____.____
1278	SPV.0060 Special 0130. Cross Stitching Longitudinal Joints and Cracks	700.000 EACH	_____.____	_____.____
1280	SPV.0060 Special 0150. Crack and Damage Survey Single or Double Unit Residential	43.000 EACH	_____.____	_____.____
1282	SPV.0060 Special 0155. Crack and Damage Survey Multi-Unit Residential	5.000 EACH	_____.____	_____.____
1284	SPV.0060 Special 0160. Crack and Damage Survey Commercial Public or Industrial	5.000 EACH	_____.____	_____.____
1286	SPV.0060 Special 0165. Maintain and Salvage Crash Cushions Temporary Left in Place	3.000 EACH	_____.____	_____.____
1288	SPV.0060 Special 0400. Marking Contrast Epoxy Special Marking Arrow	10.000 EACH	_____.____	_____.____
1290	SPV.0060 Special 0405. Remove Grooved In Pavement Marking Thermoplastic Arrows And Words	39.000 EACH	_____.____	_____.____
1292	SPV.0060 Special 0601. Baseline CPM Progress Schedule	1.000 EACH	_____.____	_____.____
1294	SPV.0060 Special 0602. Monthly CPM Progress Schedule Updates	32.000 EACH	_____.____	_____.____
1296	SPV.0060 Special 0603. Exposing Existing Infrastructure Paved Area	15.000 EACH	_____.____	_____.____
1298	SPV.0060 Special 0604. Exposing Existing Infrastructure Unpaved Area	15.000 EACH	_____.____	_____.____
1300	SPV.0060 Special 0910. Traffic Control Close-Open Freeway Entrance Ramp	449.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1302	SPV.0060 Special 0916. Traffic Control Local Road Lane Closures	435.000 EACH	_____.____	_____.____
1304	SPV.0060 Special 0917. Traffic Control Close-Open Freeway to Freeway System Ramp	56.000 EACH	_____.____	_____.____
1306	SPV.0060 Special 0918. Traffic Control Full Freeway Closure	150.000 EACH	_____.____	_____.____
1308	SPV.0060 Special 0920. Fixed Message Sign Portable Support Special	16.000 EACH	_____.____	_____.____
1310	SPV.0060 Special 0930. Dynamic Speed Display Sign	4.000 EACH	_____.____	_____.____
1312	SPV.0060 Special 0935. Moving Dynamic Speed Display Sign	4.000 EACH	_____.____	_____.____
1314	SPV.0060 Special 0940.Emergency Response to Traffic Incident Involving Concrete Barrier Temporary	40.000 EACH	_____.____	_____.____
1316	SPV.0060 Special 0945. Emergency Response to Traffic Incident Involving Crash Cushions	10.000 EACH	_____.____	_____.____
1318	SPV.0060 Special 0950. Temporary Concrete Barrier Gate 24-FT	2.000 EACH	_____.____	_____.____
1320	SPV.0060 Special 0955. Install State Furnished Sign	4.000 EACH	_____.____	_____.____
1322	SPV.0060 Special 1002. Poles Wood 60-FT	3.000 EACH	_____.____	_____.____
1324	SPV.0060 Special 1003. Poles Wood 35-FT	2.000 EACH	_____.____	_____.____
1326	SPV.0060 Special 1004. Wood Pole Lighting 60-FT	36.000 EACH	_____.____	_____.____
1328	SPV.0060 Special 1005. Wood Pole Lighting 35-FT	3.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1330	SPV.0060 Special 1006. Concrete Bases Type B	48.000 EACH	_____.____	_____.____
1332	SPV.0060 Special 1007. Concrete Bases Type C	3.000 EACH	_____.____	_____.____
1334	SPV.0060 Special 1008. Luminaires Utility HPS 400 Watts Floodlight	3.000 EACH	_____.____	_____.____
1336	SPV.0060 Special 1009. Luminaires Utility HPS 1000 Watts Floodlight	36.000 EACH	_____.____	_____.____
1338	SPV.0060 Special 2000. Removing Electrical Service Meter Breaker Pedestal	5.000 EACH	_____.____	_____.____
1340	SPV.0060 Special 2001. Removing Controller Cabinet	4.000 EACH	_____.____	_____.____
1342	SPV.0060 Special 2002. Removing Controller Cabinet Base	4.000 EACH	_____.____	_____.____
1344	SPV.0060 Special 2003. Removing Microwave Detector	3.000 EACH	_____.____	_____.____
1346	SPV.0060 Special 2004. Removing Ramp Control Signal Assembly Sidemount	6.000 EACH	_____.____	_____.____
1348	SPV.0060 Special 2005. Removing Ramp Control Signal Assembly Overhead	2.000 EACH	_____.____	_____.____
1350	SPV.0060 Special 2006. Removing Temporary Vehicle Detector Assembly	3.000 EACH	_____.____	_____.____
1352	SPV.0060 Special 2008. Salvage Solar Powered HAR Sign Assembly	1.000 EACH	_____.____	_____.____
1354	SPV.0060 Special 2009. Speed Warning Sign System	1.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1356	SPV.0060 Special 2010. Temporary Poles Wood 40-Foot	3.000 EACH	_____.____	_____.____
1358	SPV.0060 Special 2011. Temporary Poles Wood 60-Foot	2.000 EACH	_____.____	_____.____
1360	SPV.0060 Special 2012. Temporary Vehicle Detector Assembly	3.000 EACH	_____.____	_____.____
1362	SPV.0060 Special 2013. Ground Rod	6.000 EACH	_____.____	_____.____
1364	SPV.0060 Special 2014. Relocating Temporary Vehicle Detector Assembly	6.000 EACH	_____.____	_____.____
1366	SPV.0060 Special 2015. Refocus Vehicle Detector Assembly	27.000 EACH	_____.____	_____.____
1368	SPV.0060 Special 2016. Remove Pole	2.000 EACH	_____.____	_____.____
1370	SPV.0060 Special 2017. Install Temporary Traffic Camera Assembly	2.000 EACH	_____.____	_____.____
1372	SPV.0060 Special 2018. Install Salvaged Solar Powered HAR Sign Assembly	1.000 EACH	_____.____	_____.____
1374	SPV.0060 Special 2019. Remove Temporary Traffic Camera Assembly	2.000 EACH	_____.____	_____.____
1376	SPV.0060 Special 2020. Signal Assembly Ramp Control Sidemount	3.000 EACH	_____.____	_____.____
1378	SPV.0060 Special 2021. Signal Assembly Ramp Control Overhead	6.000 EACH	_____.____	_____.____
1380	SPV.0060 Special 2022. Signal Assembly Advanced Flasher Type 1	6.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1382	SPV.0060 Special 3001. Type 9 & 10 Special Traffic Signal Base	3.000 EACH	_____.____	_____.____
1384	SPV.0060 Special 3002. Transport and Install Poles Type 9 Special	2.000 EACH	_____.____	_____.____
1386	SPV.0060 Special 3003. Transport and Install Poles Type 10	8.000 EACH	_____.____	_____.____
1388	SPV.0060 Special 3004. Transport and Install Poles Type 10 Special	1.000 EACH	_____.____	_____.____
1390	SPV.0060 Special 3005. Transport and Install Monotube Arms 15-FT	2.000 EACH	_____.____	_____.____
1392	SPV.0060 Special 3006. Transport and Install Monotube Arms 20-FT	1.000 EACH	_____.____	_____.____
1394	SPV.0060 Special 3007. Transport and Install Monotube Arms 25-FT	2.000 EACH	_____.____	_____.____
1396	SPV.0060 Special 3008. Transport and Install Monotube Arms 30-FT	3.000 EACH	_____.____	_____.____
1398	SPV.0060 Special 3009. Transport and Install Monotube Arms 35- FT	1.000 EACH	_____.____	_____.____
1400	SPV.0060 Special 3010. Transport and Install Monotube Arms 40-FT	2.000 EACH	_____.____	_____.____
1402	SPV.0060 Special 3011. Transport and Install Luminaire Arms Steel 8- FT	6.000 EACH	_____.____	_____.____
1404	SPV.0060 Special 3012. Transport and Install Luminaire Arms Steel 15-FT	9.000 EACH	_____.____	_____.____
1406	SPV.0060 Special 3013.Covering Existing Traffic Signal Faces	3.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1408	SPV.0060 Special 3101. Removing Monotube Concrete Bases	4.000 EACH	_____.____	_____.____
1410	SPV.0060 Special 3102. Traffic Signal Controller Programming	1.000 EACH	_____.____	_____.____
1412	SPV.0060 Special 3103. EVP Detector Type I	4.000 EACH	_____.____	_____.____
1414	SPV.0060 Special 3104. EVP Discriminator Type IV	1.000 EACH	_____.____	_____.____
1416	SPV.0060 Special 3105. EVP Confirmation Light Assembly Type I	4.000 EACH	_____.____	_____.____
1418	SPV.0060 Special 3106. Concrete Control Cabinet Bases Type 9 special Super P	1.000 EACH	_____.____	_____.____
1420	SPV.0060 Special 4008. Pile Dynamic Analyzer (PDA) Testing	8.000 EACH	_____.____	_____.____
1422	SPV.0060 Special 4028. Pile Dynamic Analyzer (PDA) Restrikes	8.000 EACH	_____.____	_____.____
1424	SPV.0060 Special 4048. Case Pile Wave Analysis Program (CAP/WAP) Evaluation	4.000 EACH	_____.____	_____.____
1426	SPV.0060 Special 4068. Bearing Pads Elastomeric Special Temporary	50.000 EACH	_____.____	_____.____
1428	SPV.0060 Special 4080. Bearing High Load Multi-Rotational Guided	8.000 EACH	_____.____	_____.____
1430	SPV.0060 Special 4088. Bearings High-Load Multi-Rotational T-Guided UPRR	4.000 EACH	_____.____	_____.____
1432	SPV.0060 Special 4108. Bearings High-Load Multi-Rotational Non-Guided UPRR	4.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1434	SPV.0060 Special 4128. Bearings High-Load Multi-Rotational L-Guided UPRR	4.000 EACH	_____.____	_____.____
1436	SPV.0060 Special 4148. Thermal Integ Profiler (TIP) Testing, Drilled Foundation Shaft 59.06-Inch	4.000 EACH	_____.____	_____.____
1438	SPV.0060 Special 4168. Thermal Integrity Profiler (TIP) Testing, Wall Secant Pile 59.06-Inch	6.000 EACH	_____.____	_____.____
1440	SPV.0060 Special 4171. Crosshole Sonic Log (CSL) Testing, Drilled Foundation Shaft 59.06-Inch	4.000 EACH	_____.____	_____.____
1442	SPV.0060 Special 4172. Crosshole Sonic Log (CSL) Testing, Wall Secant Pile 59.06-Inch	72.000 EACH	_____.____	_____.____
1444	SPV.0060 Special 4173. Crosshole Sonic Log (CSL) Testing, Wall Tangent Pile 36-Inch	90.000 EACH	_____.____	_____.____
1446	SPV.0060 Special 4175. Tieback Anchors	677.000 EACH	_____.____	_____.____
1448	SPV.0060 Special 4180. Tieback Anchors Performance Tests	35.000 EACH	_____.____	_____.____
1450	SPV.0060 Special 4181. Pile Integrity Testing (PIT), Drilled Foundation Shaft 59.06-Inch	4.000 EACH	_____.____	_____.____
1452	SPV.0060 Special 4182. Pile Integrity Testing (PIT), Wall Secant Pile 59.06-Inch	6.000 EACH	_____.____	_____.____
1454	SPV.0060 Special 4185. Anchor Assemblies Noise Barrier Structures	204.000 EACH	_____.____	_____.____
1456	SPV.0060 Special 4190. Anchor Slab Inlet Cover Special	6.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1458	SPV.0060 Special 4195. Fire Hydrant Sign Mounting	8.000 EACH	_____.____	_____.____
1460	SPV.0060 Special 5100. Sanitary Manhole Type A 48-Inch	4.000 EACH	_____.____	_____.____
1462	SPV.0060 Special 5101. Sanitary Manhole Type A 60-Inch	2.000 EACH	_____.____	_____.____
1464	SPV.0060 Special 5102. Sanitary Manhole Type D	2.000 EACH	_____.____	_____.____
1466	SPV.0060 Special 5103. Abandoning Sanitary Manhole	5.000 EACH	_____.____	_____.____
1468	SPV.0060 Special 5104. Adjusting Sanitary Manhole	29.000 EACH	_____.____	_____.____
1470	SPV.0060 Special 5200. Adjusting Water Valve Boxes	19.000 EACH	_____.____	_____.____
1472	SPV.0060 Special 5210. Permanent Connection to Existing 6-Inch Water Main	8.000 EACH	_____.____	_____.____
1474	SPV.0060 Special 5211. Permanent Connection to Existing 8-Inch Water Main	7.000 EACH	_____.____	_____.____
1476	SPV.0060 Special 5212. Permanent Connection to Existing 12-Inch Water Main	2.000 EACH	_____.____	_____.____
1478	SPV.0060 Special 5213. Permanent Connection to Existing 16-Inch Water Main	2.000 EACH	_____.____	_____.____
1480	SPV.0060 Special 5214. Permanent Connection to Existing 24-Inch Water Main	4.000 EACH	_____.____	_____.____
1482	SPV.0060 Special 5260. Hydrant Assembly	13.000 EACH	_____.____	_____.____
1484	SPV.0060 Special 5265. Remove Hydrant	13.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1486	SPV.0060 Special 5275. Polyethylene Water Service 1.25-Inch Length 0'-15'	2.000 EACH	_____.____	_____.____
1488	SPV.0060 Special 5276. Polyethylene Water Service 1.25-Inch Length 15.1'-25'	6.000 EACH	_____.____	_____.____
1490	SPV.0060 Special 5277. Polyethylene Water Service 1.25-Inch Length 25.1'-45'	21.000 EACH	_____.____	_____.____
1492	SPV.0060 Special 5278. Polyethylene Water Service 1.5-Inch Length 15.1-25'	1.000 EACH	_____.____	_____.____
1494	SPV.0060 Special 5279. Polyethylene Water Service 2-Inch Length 15.1'-25'	1.000 EACH	_____.____	_____.____
1496	SPV.0060 Special 5290. Resilient Wedge Gate Valve 6-Inch	1.000 EACH	_____.____	_____.____
1498	SPV.0060 Special 5291. Resilient Wedge Gate Valve 8-Inch	24.000 EACH	_____.____	_____.____
1500	SPV.0060 Special 5292. Resilient Wedge Gate Valve 12-Inch	2.000 EACH	_____.____	_____.____
1502	SPV.0060 Special 5293. Butterfly Valve 16-Inch	8.000 EACH	_____.____	_____.____
1504	SPV.0060 Special 5294. Butterfly Valve 24-Inch	3.000 EACH	_____.____	_____.____
1506	SPV.0060 Special 6001. Sign Support Special Mounting	28.000 EACH	_____.____	_____.____
1508	SPV.0060 Special 8004. Inlet Covers Type 57	1.000 EACH	_____.____	_____.____
1510	SPV.0060 Special 8007. Reconnect Storm Sewer Laterals	12.000 EACH	_____.____	_____.____
1512	SPV.0060 Special 8012. Manholes 9-FT Special	8.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1514	SPV.0060 Special 8013. Manholes 10-FT Special	6.000 EACH	_____.____	_____.____
1516	SPV.0060 Special 8014. Manholes 12-FT Special	2.000 EACH	_____.____	_____.____
1518	SPV.0060 Special 8015. Pipe Connection To Existing Structure	51.000 EACH	_____.____	_____.____
1520	SPV.0060 Special 8018. Removing Bulkhead	40.000 EACH	_____.____	_____.____
1522	SPV.0060 Special 8020. Fastening Sewer Access Covers	260.000 EACH	_____.____	_____.____
1524	SPV.0060 Special 8022. Sawing Concrete Barrier	2.000 EACH	_____.____	_____.____
1526	SPV.0060 Special 8050. Inlet Covers Type 27-M	169.000 EACH	_____.____	_____.____
1528	SPV.0060 Special 8065. Removing Cover Plates Left In Place	32.000 EACH	_____.____	_____.____
1530	SPV.0060 Special 8505. Storm Sewer Structure N2173	1.000 EACH	_____.____	_____.____
1532	SPV.0060 Special 8507. Storm Sewer Structure N2211	1.000 EACH	_____.____	_____.____
1534	SPV.0075 Special 0601. Pavement Cleanup Project 1060-33-84	5,000.000 HRS	_____.____	_____.____
1536	SPV.0075 Special 0602. Pavement Cleanup Project 1060-34-77	475.000 HRS	_____.____	_____.____
1538	SPV.0075 Special 4008. Obstructions Drilled Foundation Shaft	6.000 HRS	_____.____	_____.____
1540	SPV.0075 Special 4048. Obstructions Wall Secant Pile	36.000 HRS	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1542	SPV.0075 Special 4050. Obstructions Wall Tangent Pile	5.000 HRS	_____.____	_____.____
1544	SPV.0075 Special 4055. Obstructions Foundation Drilling	45.000 HRS	_____.____	_____.____
1546	SPV.0075 Special 5100. Obstructions Trenchless Utility Construction	24.000 HRS	_____.____	_____.____
1548	SPV.0090 Special 0001. Removing Concrete Barrier Precast	4,694.000 LF	_____.____	_____.____
1550	SPV.0090 Special 0002. Maintain and Remove Concrete Barrier Temporary Precast	7,930.000 LF	_____.____	_____.____
1552	SPV.0090 Special 0003. Removing Modular Block Retaining Wall	245.000 LF	_____.____	_____.____
1554	SPV.0090 Special 0004. Removing Partial Modular Block Retaining Wall	266.000 LF	_____.____	_____.____
1556	SPV.0090 Special 0101. Concrete Curb & Gutter 31-Inch Integral	861.000 LF	_____.____	_____.____
1558	SPV.0090 Special 0102. Concrete Gutter 42-Inch	130.000 LF	_____.____	_____.____
1560	SPV.0090 Special 0103. Concrete Gutter 66-Inch	71.000 LF	_____.____	_____.____
1562	SPV.0090 Special 0105. Concrete Barrier Type S42C Special	5,276.000 LF	_____.____	_____.____
1564	SPV.0090 Special 0110. Galvanized Pipe Railing	9.000 LF	_____.____	_____.____
1566	SPV.0090 Special 0126. Pipe Underdrain 6-Inch Special	46,965.000 LF	_____.____	_____.____
1568	SPV.0090 Special 0127. Pipe Underdrain 10-Inch Special	165.000 LF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1570	SPV.0090 Special 0301. Heavy Duty Silt Fence	3,114.000 LF	_____.____	_____.____
1572	SPV.0090 Special 0400. Marking Contrast Epoxy 4-Inch	9,757.000 LF	_____.____	_____.____
1574	SPV.0090 Special 0401. Marking Contrast Epoxy 8-Inch	8,895.000 LF	_____.____	_____.____
1576	SPV.0090 Special 0405. Remove Pavement Marking 12-Inch	96.000 LF	_____.____	_____.____
1578	SPV.0090 Special 0410. Remove Grooved In Pavement Marking Thermoplastic Stop Bar	438.000 LF	_____.____	_____.____
1580	SPV.0090 Special 0414. Remove Pavement Marking Grooved Tape 4-Inch	1,379.000 LF	_____.____	_____.____
1582	SPV.0090 Special 0415. Remove Pavement Marking Grooved Tape 8-Inch	1,868.000 LF	_____.____	_____.____
1584	SPV.0090 Special 0600. Salvage Temporary Precast Concrete Barrier Left in Place	1,087.500 LF	_____.____	_____.____
1586	SPV.0090 Special 0800. Remove and Dispose of UPRR Track	6,142.000 LF	_____.____	_____.____
1588	SPV.0090 Special 0805. Construct 136LB ISHH CWR on Wood Ties	6,159.000 LF	_____.____	_____.____
1590	SPV.0090 Special 0810. Construct Double Inside Guard Rail	660.000 LF	_____.____	_____.____
1592	SPV.0090 Special 0900. Fence Temporary 6-FT	8,775.000 LF	_____.____	_____.____
1594	SPV.0090 Special 0910. Glare Screens Temporary	11,450.000 LF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1596	SPV.0090 Special 0920. Concrete Barrier Temporary Precast Anchoring	2,400.000 LF	_____.____	_____.____
1598	SPV.0090 Special 0925. Concrete Barrier Temporary Precast Anchored on Bridge	3,200.000 LF	_____.____	_____.____
1600	SPV.0090 Special 1001. Cable Aerial Aluminum 6 AWG Triplex	1,100.000 LF	_____.____	_____.____
1602	SPV.0090 Special 1002. Cable Aerial Aluminum 4 AWG Triplex	5,470.000 LF	_____.____	_____.____
1604	SPV.0090 Special 1003. Cable Aerial Aluminum 2 AWG Triplex	1,930.000 LF	_____.____	_____.____
1606	SPV.0090 Special 4008. Piling Steel HP 14-Inch X 89LB	1,500.000 LF	_____.____	_____.____
1608	SPV.0090 Special 4009. Piling Steel HP 14-Inch x 117 LB	1,500.000 LF	_____.____	_____.____
1610	SPV.0090 Special 4028. Drilled Foundation Shaft 59.06-Inch	211.000 LF	_____.____	_____.____
1612	SPV.0090 Special 4035. Foundation Drilling	14,370.000 LF	_____.____	_____.____
1614	SPV.0090 Special 4048. Wall Secant Pile 59.06-Inch	4,520.000 LF	_____.____	_____.____
1616	SPV.0090 Special 4050. Wall Tangent Pile 36-Inch	11,900.000 LF	_____.____	_____.____
1618	SPV.0090 Special 4068. Handrail B-40-878	295.000 LF	_____.____	_____.____
1620	SPV.0090 Special 4069. Handrail R-40-622	325.000 LF	_____.____	_____.____
1622	SPV.0090 Special 4088. Handrail Temporary	836.000 LF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1624	SPV.0090 Special 4100. Fence Decorative Bridge	560.000 LF	_____.____	_____.____
1626	SPV.0090 Special 4105. Fence Decorative Wall	1,927.000 LF	_____.____	_____.____
1628	SPV.0090 Special 4200. Removing Existing Steel Piling	1,005.000 LF	_____.____	_____.____
1630	SPV.0090 Special 4205. Removing Existing Timber Piling	255.000 LF	_____.____	_____.____
1632	SPV.0090 Special 5001. Removing Concrete Encased Duct Package	1,543.000 LF	_____.____	_____.____
1634	SPV.0090 Special 5002. Removing Concrete Encased 21-Inch Sewer	231.000 LF	_____.____	_____.____
1636	SPV.0090 Special 5101. Sanitary Sewer 8-Inch PVC	546.000 LF	_____.____	_____.____
1638	SPV.0090 Special 5102. Sanitary Sewer 10-Inch PVC	701.000 LF	_____.____	_____.____
1640	SPV.0090 Special 5103. Sanitary Sewer 21-Inch PVC	410.000 LF	_____.____	_____.____
1642	SPV.0090 Special 5104. Steel Casing W/ Sanitary Sewer 10-Inch PVC Carrier	317.000 LF	_____.____	_____.____
1644	SPV.0090 Special 5105. Abandoning Sanitary Sewer 8-Inch	1,723.000 LF	_____.____	_____.____
1646	SPV.0090 Special 5106. Abandoning Sanitary Sewer 18-Inch	30.000 LF	_____.____	_____.____
1648	SPV.0090 Special 5107. Abandoning Sanitary Sewer 21-Inch	1,052.000 LF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1650	SPV.0090 Special 5225. Ductile Iron (DI) AWWA C-151 Class 55 Water Main 6-Inch	53.000 LF	_____.____	_____.____
1652	SPV.0090 Special 5226. Ductile Iron (DI) AWWA C-151 Class 55 Water Main 8-Inch	3,341.000 LF	_____.____	_____.____
1654	SPV.0090 Special 5227. Ductile Iron (DI) AWWA C-151 Class 55 Water Main 12-Inch	132.000 LF	_____.____	_____.____
1656	SPV.0090 Special 5228. Ductile Iron (DI) AWWA C-151 Class 55 Water Main 16-Inch	2,050.000 LF	_____.____	_____.____
1658	SPV.0090 Special 5229. Ductile Iron (DI) AWWA C-151 Class 55 Water Main 24-Inch	351.000 LF	_____.____	_____.____
1660	SPV.0090 Special 5239. Removing Water Main	44.000 LF	_____.____	_____.____
1662	SPV.0090 Special 5250. Abandon Existing 6-Inch Water Main	2,125.000 LF	_____.____	_____.____
1664	SPV.0090 Special 5251. Abandon Existing 8-Inch Water Main	436.000 LF	_____.____	_____.____
1666	SPV.0090 Special 5252. Abandon Existing 12-Inch Water Main	469.000 LF	_____.____	_____.____
1668	SPV.0090 Special 5253. Abandon Existing 16-Inch Water Main	687.000 LF	_____.____	_____.____
1670	SPV.0090 Special 8025. Pipe Underdrain Exploration	100.000 LF	_____.____	_____.____
1672	SPV.0090 Special 8026. Storm Sewer Lateral Exploration	100.000 LF	_____.____	_____.____
1674	SPV.0090 Special 8031. Precast Trench Drain	1,541.000 LF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1676	SPV.0090 Special 8036. Temporary Precast Trench Drain	2,355.000 LF	_____._____	_____._____
1678	SPV.0105 Special 0604. Survey Project 1060-33-84	LS	LUMP SUM	_____._____
1680	SPV.0105 Special 0605. Survey Project 1060-34-77	LS	LUMP SUM	_____._____
1682	SPV.0105 Special 1001. Maintenance of Lighting Systems	LS	LUMP SUM	_____._____
1684	SPV.0105 Special 1002. Lighting System Integrator	LS	LUMP SUM	_____._____
1686	SPV.0105 Special 1003. Lighting System Survey	LS	LUMP SUM	_____._____
1688	SPV.0105 Special 3001. Trans and Inst State Furn Traffic Signal Cab IH 41 SB Ramps & W. North Ave	LS	LUMP SUM	_____._____
1690	SPV.0105 Special 3002. Transport & Inst State Furn Traffic Sig Cab IH 41 NB on Ramp & W North Ave	LS	LUMP SUM	_____._____
1692	SPV.0105 Special 3003. Trans & Inst State Furn Emer Vehicle Preemp (EVP) Dete Heads W/ Con Beacon	LS	LUMP SUM	_____._____
1694	SPV.0105 Special 3004. Trans & Inst State Furn Emer Vehicle Preemp (EVP) Dete Heads W/ Con Beacon	LS	LUMP SUM	_____._____
1696	SPV.0105 Special 3005. Trans and Inst State Furn FO Cable PT 8-CT IH 41 SB on Ramp & W. North Ave	LS	LUMP SUM	_____._____
1698	SPV.0105 Special 3006. Trans and Inst State Furn FO Cable PT 8-CT IH 41 NB on Ramp & W. North Ave	LS	LUMP SUM	_____._____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1700	SPV.0105 Special 3101. Transport and Install State Furnished Municipal Traffic Signal Cabinet	LS	LUMP SUM	_____.____
1702	SPV.0105 Special 3102. Video Vehicle Detection System	LS	LUMP SUM	_____.____
1704	SPV.0105 Special 4008. Trial Wall Panel Secant Pile 59.06-Inch	LS	LUMP SUM	_____.____
1706	SPV.0105 Special 4010. Trial Wall Panel Tangent Pile 36-Inch	LS	LUMP SUM	_____.____
1708	SPV.0105 Special 4015. Track, Shoring, and Existing Structure Monitoring UPRR	LS	LUMP SUM	_____.____
1710	SPV.0105 Special 5245. Control of Water	LS	LUMP SUM	_____.____
1712	SPV.0105 Special 6001. Rectangular Rapid Flash Beacon (RRFB) System Station 730+00 NOG Right	LS	LUMP SUM	_____.____
1714	SPV.0105 Special 6002. Rectangular Rapid Flash Beacon (RRFB) System Station 734+00 NOB Right	LS	LUMP SUM	_____.____
1716	SPV.0105 Special 6003. Rectangular Rapid Flash Beacon (RRFB) System Station 734+00 NOB Left	LS	LUMP SUM	_____.____
1718	SPV.0105 Special 6004. Rectangular Rapid Flash Beacon (RRFB) System Station 726+00 NOB Right	LS	LUMP SUM	_____.____
1720	SPV.0105 Special 6005. Rectangular Rapid Flash Beacon (RRFB) System Station 725+50 NOG Right	LS	LUMP SUM	_____.____
1722	SPV.0105 Special 6006. Rectangular Rapid Flash Beacon (RRFB) System Station 725+50 NOG Left	LS	LUMP SUM	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1724	SPV.0105 Special 6007. Rectangular Rapid Flash Beacon (RRFB) System Station 732+00 NOA Right	LS	LUMP SUM	_____.____
1726	SPV.0105 Special 6008. Rectangular Rapid Flash Beacon (RRFB) System Station 732+00 NOA Left	LS	LUMP SUM	_____.____
1728	SPV.0105 Special 6009. Rectangular Rapid Flash Beacon (RRFB) System Station 122+50NO Right	LS	LUMP SUM	_____.____
1730	SPV.0105 Special 6010. Rectangular Rapid Flash Beacon (RRFB) System Station 738+00 NOC Right	LS	LUMP SUM	_____.____
1732	SPV.0105 Special 6011. Rectangular Rapid Flash Beacon (RRFB) System Station 738+00 NOC Left	LS	LUMP SUM	_____.____
1734	SPV.0105 Special 6020. Chevron Solar Powered Sign System Assembly Ramp MA	LS	LUMP SUM	_____.____
1736	SPV.0105 Special 6021. Chevron Solar Powered Sign System Assembly Ramp NOB	LS	LUMP SUM	_____.____
1738	SPV.0105 Special 6022. Chevron Solar Powered Sign System Assembly Ramp NOG	LS	LUMP SUM	_____.____
1740	SPV.0105 Special 8098. Control of Water Storm Sewer	LS	LUMP SUM	_____.____
1742	SPV.0110 Special 4001. Timber Lagging	146.000 MBM	_____.____	_____.____
1744	SPV.0135 Special 0100. Field Office Special	45.000 MON	_____.____	_____.____
1746	SPV.0135 Special 0601. Vibration Monitoring	32.000 MON	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1748	SPV.0165 Special 4005. Temporary Wall Wire Faced Mechanically Stabilized Earth	4,270.000 SF	_____.____	_____.____
1750	SPV.0165 Special 4010. Prestressed Precast Concrete Wall Panel R-40-567	21,770.000 SF	_____.____	_____.____
1752	SPV.0165 Special 4015. Geocomposite Drain Board	44,470.000 SF	_____.____	_____.____
1754	SPV.0165 Special 4020. Concrete Staining Previously Constructed Structure	54,455.000 SF	_____.____	_____.____
1756	SPV.0165 Special 4028. Temporary Shoring Railroad Type A	5,886.000 SF	_____.____	_____.____
1758	SPV.0165 Special 4048. Temporary Shoring Railroad Type B	120.000 SF	_____.____	_____.____
1760	SPV.0165 Special 4060. Temporary Shoring Railroad Type CP	330.000 SF	_____.____	_____.____
1762	SPV.0165 Special 4069. Precast Concrete Modular Retaining Wall	3,340.000 SF	_____.____	_____.____
1764	SPV.0165 Special 4088. Precast Concrete Modular Wingwall	749.000 SF	_____.____	_____.____
1766	SPV.0165 Special 4090. Geocomposite Wall Drain	1,120.000 SF	_____.____	_____.____
1768	SPV.0165 Special 4100. Wall Concrete Panel Mechanically Stabilized Earth R-40-561	9,290.000 SF	_____.____	_____.____
1770	SPV.0165 Special 4101. Wall Concrete Panel Mechanically Stabilized Earth R-40-564	5,013.000 SF	_____.____	_____.____
1772	SPV.0165 Special 4102. Wall Concrete Panel Mechanically Stabilized Earth R-40-568	1,075.000 SF	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1774	SPV.0165 Special 4103. Wall Concrete Panel Mechanically Stabilized Earth R-40-569	4,295.000 SF	_____.____	_____.____
1776	SPV.0165 Special 4104. Wall Concrete Panel Mechanically Stabilized Earth R-40-570	13,240.000 SF	_____.____	_____.____
1778	SPV.0165 Special 4105. Wall Concrete Panel Mechanically Stabilized Earth R-40-572	1,142.000 SF	_____.____	_____.____
1780	SPV.0165 Special 4106. Wall Concrete Panel Mechanically Stabilized Earth R-40-632	2,640.000 SF	_____.____	_____.____
1782	SPV.0165 Special 4107. Wall Concrete Panel Mechanically Stabilized Earth R-40-635	2,846.000 SF	_____.____	_____.____
1784	SPV.0180 Special 0101. Concrete Pavement 12-Inch Special	186,659.000 SY	_____.____	_____.____
1786	SPV.0180 Special 0102. Concrete Pavement HES 12-Inch Special	1,701.000 SY	_____.____	_____.____
1788	SPV.0180 Special 0103. Concrete Pavement 10-Inch Special	35,206.000 SY	_____.____	_____.____
1790	SPV.0180 Special 0105. Resin Binder High Friction Surface Treatment	2,757.000 SY	_____.____	_____.____
1792	SPV.0180 Special 0110. Pesticide Application	43,200.000 SY	_____.____	_____.____
1794	SPV.0180 Special 0301. Topsoil Special	176,099.000 SY	_____.____	_____.____
1796	SPV.0180 Special 0601. Soil Drying	68,000.000 SY	_____.____	_____.____
1798	SPV.0180 Special 0603. Concrete Pavement Repair Special	85.000 SY	_____.____	_____.____
1800	SPV.0180 Special 0604. Asphaltic Material Binder	8,074.000 SY	_____.____	_____.____

Proposal ID: 20201013001 **Project(s):** 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1802	SPV.0180 Special 4008. Membrane Waterproofing	2,050.000 SY	_____.____	_____.____
1804	SPV.0180 Special 4048. Asphalt Panels	3,617.000 SY	_____.____	_____.____
1806	SPV.0195 Special 0001. Fly Ash Stabilization	8,579.000 TON	_____.____	_____.____
1808	SPV.0195 Special 0002. Riprap Reach D Stone	2,000.000 TON	_____.____	_____.____
1810	SPV.0195 Special 0004. Excavation, Hauling, and Disposal of Low-Level Contaminated Soil	39,449.000 TON	_____.____	_____.____
1812	SPV.0195 Special 0010. Base Aggregate Dense 1 1/4-Inch Restoration	4,700.000 TON	_____.____	_____.____
1814	SPV.0195 Special 0015. Stone No. 2 Special	640.000 TON	_____.____	_____.____
1816	SPV.0195 Special 0020. HMA Longitudinal Joint Repair	500.000 TON	_____.____	_____.____
1818	SPV.0195 Special 0601. Soil Drying Agent	1,500.000 TON	_____.____	_____.____
1820	SPV.0195 Special 4008. Base Aggregate Open Graded Special	9,530.000 TON	_____.____	_____.____
1822	SPV.0195 Special 4029. Backfill Modular Retaining Wall	2,900.000 TON	_____.____	_____.____
1824	SPV.0195 Special 5001. Removing Wood Poles UPRR	6.000 TON	_____.____	_____.____

Section: 0001 **Total:** _____.____

Total Bid: _____.____

PLEASE ATTACH ADDENDA HERE

Wisconsin Department of Transportation

Division of Transportation Systems Development
Bureau of Project Development
4822 Madison Yards Way, 4th Floor South
Madison, WI 53705

Telephone: (608) 266-1631
Facsimile (FAX): (608) 266-8459

October 6, 2020

NOTICE TO ALL CONTRACTORS:

Federal Wage Rate Addendum #01

Letting of October 13, 2020

Attached is a copy of the revised WI 10 Highway Davis Bacon Prevailing Wage Rates that are included in proposal 01; and WI 8 Heavy (Sewer & Water Line & Tunnel) Davis Bacon Prevailing Wage Rates that are included in proposal 01. These wage rates are effective for all proposals they are included in in the October 13, 2020 letting. The updated wage rates are dated October 2, 2020 and are effective on or after October 12, 2020.

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

"General Decision Number: WI20200010 10/02/2020

Superseded General Decision Number: WI20190010

State: Wisconsin

Construction Type: Highway

Counties: Wisconsin Statewide.

HIGHWAY, AIRPORT RUNWAY & TAXIWAY CONSTRUCTION PROJECTS (does not include bridges over navigable waters; tunnels; buildings in highway rest areas; and railroad construction)

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2020
1	01/24/2020
2	02/28/2020
3	03/06/2020
4	06/05/2020
5	06/12/2020
6	06/19/2020
7	07/17/2020
8	08/28/2020

9	09/11/2020
10	09/18/2020
11	10/02/2020

BRWI0001-002 06/03/2019

CRAWFORD, JACKSON, JUNEAU, LA CROSSE, MONROE, TREMPEALEAU, AND VERNON COUNTIES

	Rates	Fringes
BRICKLAYER	$ 33.80	24.28

BRWI0002-002 06/01/2019

ASHLAND, BAYFIELD, DOUGLAS, AND IRON COUNTIES

	Rates	Fringes
BRICKLAYER	$ 39.94	23.30

BRWI0002-005 06/01/2019

ADAMS, ASHLAND, BARRON, BROWN, BURNETT, CALUMET, CHIPPEWA, CLARK, COLUMBIA, DODGE, DOOR, DUNN, FLORENCE, FOND DU LAC, FOREST, GREEN LAKE, IRON, JEFFERSON, KEWAUNEE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE, MARQUETTE, MENOMINEE, OCONTO, ONEIDA, OUTAGAMIE, POLK, PORTAGE, RUSK, ST CROIX, SAUK, SHAWANO, SHEBOYGAN, TAYLOR, VILAS, WALWORTH, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 35.51	23.37

BRWI0003-002 06/03/2019

BROWN, DOOR, FLORENCE, KEWAUNEE, MARINETTE, AND OCONTO COUNTIES

	Rates	Fringes
BRICKLAYER	$ 34.18	23.90

BRWI0004-002 06/01/2019

KENOSHA, RACINE, AND WALWORTH COUNTIES

	Rates	Fringes

BRICKLAYER.....$ 38.43 25.10

BRWI0006-002 06/01/2019

ADAMS, CLARK, FOREST, LANGLADE, LINCOLN, MARATHON, MENOMINEE, ONEIDA, PORTAGE, PRICE, TAYLOR, VILAS AND WOOD COUNTIES

	Rates	Fringes
BRICKLAYER	$ 35.06	23.02

BRWI0007-002 06/03/2019

GREEN, LAFAYETTE, AND ROCK COUNTIES

	Rates	Fringes
BRICKLAYER	$ 35.57	24.22

BRWI0008-002 06/01/2019

MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
BRICKLAYER	$ 38.93	24.22

BRWI0011-002 06/03/2019

CALUMET, FOND DU LAC, MANITOWOC, AND SHEBOYGAN COUNTIES

	Rates	Fringes
BRICKLAYER	$ 34.18	23.90

BRWI0019-002 06/03/2019

BARRON, BUFFALO, BURNETT, CHIPPEWA, DUNN, EAU CLAIRE, PEPIN, PIERCE, POLK, RUSK, ST. CROIX, SAWYER AND WASHBURN COUNTIES

	Rates	Fringes
BRICKLAYER	$ 33.40	24.68

BRWI0034-002 06/03/2019

COLUMBIA AND SAUK COUNTIES

	Rates	Fringes
BRICKLAYER	$ 35.56	24.23

CARP0087-001 05/01/2016

BURNETT (W. of Hwy 48), PIERCE (W. of Hwy 29), POLK (W. of Hwys 35, 48 & 65), AND ST. CROIX (W. of Hwy 65) COUNTIES

	Rates	Fringes
Carpenter & Piledrivermen	$ 36.85	18.39

CARP0252-002 06/01/2016

ADAMS, BARRON, BAYFIELD (Eastern 2/3), BROWN, BUFFALO, BURNETT (E. of Hwy 48), CALUMET, CHIPPEWA, CLARK, COLUMBIA, CRAWFORD, DANE, DODGE, DOOR, DUNN, EAU CLAIRE, FLORENCE (except area bordering Michigan State Line), FOND DU LAC, FOREST, GRANT, GREEN, GREEN LAKE, IOWA, IRON, JACKSON, JEFFERSON, JUNEAU, KEWAUNEE, LA CROSSE, LAFAYETTE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE (except N.E. corner), MARQUETTE, MENOMINEE, MONROE, OCONTO, ONEIDA, OUTAGAMIE, PEPIN, PIERCE (E. of Hwys 29 & 65), POLK (E. of Hwys 35, 48 & 65), PORTAGE, PRICE, RICHLAND, ROCK, RUSK, SAUK, SAWYER, SHAWANO, SHEBOYGAN, ST CROIX (E. of Hwy 65), TAYLOR, TREMPEALEAU, VERNON, VILAS, WALWORTH, WASHBURN, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
CARPENTER		
CARPENTER	$ 33.56	18.00
MILLWRIGHT	$ 35.08	18.35
PILEDRIVER	$ 34.12	18.00

CARP0252-010 06/01/2016

ASHLAND COUNTY

	Rates	Fringes
Carpenters		
Carpenter	$ 33.56	18.00
Millwright	$ 35.08	18.35
Pile Driver	$ 34.12	18.00

CARP0264-003 06/01/2016

KENOSHA, MILWAUKEE, OZAUKEE, RACINE, WAUKESHA, AND WASHINGTON COUNTIES

	Rates	Fringes
CARPENTER	$ 35.78	22.11

CARP0361-004 05/01/2018

BAYFIELD (West of Hwy 63) AND DOUGLAS COUNTIES

	Rates	Fringes
CARPENTER	$ 36.15	20.43

CARP2337-001 06/01/2016

ZONE A: MILWAUKEE, OZAUKEE, WAUKESHA AND WASHINGTON

ZONE B: KENOSHA & RACINE

	Rates	Fringes
PILEDRIVERMAN		
Zone A	$ 31.03	22.69
Zone B	$ 31.03	22.69

ELEC0014-002 06/14/2020

ASHLAND, BARRON, BAYFIELD, BUFFALO, BURNETT, CHIPPEWA, CLARK (except Maryville, Colby, Unity, Sherman, Fremont, Lynn & 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

	Rates	Fringes
Electricians:	$ 35.98	20.98

ELEC0014-007 07/05/2020

REMAINING COUNTIES

	Rates	Fringes

Teledata System Installer
Installer/Technician.....$ 27.75 15.14

Low voltage construction, installation, maintenance and removal of teledata facilities (voice, data, and video) including outside plant, telephone and data inside wire, interconnect, terminal equipment, central offices, PABX, fiber optic cable and equipment, micro waves, V-SAT, bypass, CATV, WAN (wide area networks), LAN (local area networks), and ISDN (integrated systems digital network).

ELEC0127-002 06/01/2020

KENOSHA COUNTY

	Rates	Fringes
Electricians:	$ 41.62	30%+12.70

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* ELEC0158-002 06/01/2020

BROWN, DOOR, KEWAUNEE, MANITOWOC (except Schleswig), MARINETTE(Wausuakee and area South thereof), OCONTO, MENOMINEE (East of a ine 6 miles West of the West boundary of Oconto County), SHAWANO (Except Area North of Townships of Aniwa and Hutchins) COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 34.77	29.75%+10.26

ELEC0159-003 08/02/2020

COLUMBIA, DANE, DODGE (Area West of Hwy 26, except Chester and 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

	Rates	Fringes
ELECTRICIAN	$ 41.86	22.67

ELEC0219-004 06/01/2019

FLORENCE COUNTY (Townships of Aurora, Commonwealth, Fern,

Florence and Homestead) AND MARINETTE COUNTY (Township of Niagara)

	Rates	Fringes
Electricians:		
Electrical contracts over $180,000	$ 33.94	21.80
Electrical contracts under $180,000	$ 31.75	21.73

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* ELEC0242-005 05/31/2020

DOUGLAS COUNTY

	Rates	Fringes
Electricians:	$ 39.77	28.11

ELEC0388-002 06/01/2020

ADAMS, CLARK (Colby, Freemont, Lynn, Mayville, Sherman, Sherwood, Unity), FOREST, JUNEAU, LANGLADE, LINCOLN, MARATHON, MARINETTE (Beecher, Dunbar, Goodman & Pembine), MENOMINEE (Area West of a line 6 miles West of the West boundary of Oconto County), ONEIDA, PORTAGE, SHAWANO (Aniwa and Hutchins), VILAS AND WOOD COUNTIES

	Rates	Fringes
Electricians:	$ 34.85	26%+11.20

ELEC0430-002 06/01/2020

RACINE COUNTY (Except Burlington Township)

	Rates	Fringes
Electricians:	$ 41.86	22.66

ELEC0494-005 06/01/2020

MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Electricians:	$ 42.84	25.54

ELEC0494-006 06/01/2020

CALUMET (Township of New Holstein), DODGE (East of Hwy 26 including Chester Township), FOND DU LAC, MANITOWOC (Schleswig), and SHEBOYGAN COUNTIES

	Rates	Fringes
Electricians:	$ 36.32	22.51

ELEC0494-013 06/07/2020

DODGE (East of Hwy 26 including Chester Twp, excluding Emmet Twp), FOND DU LAC (Except Waupuin), MILWAUKEE, OZAUKEE, MANITOWOC (Schleswig), WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Sound & Communications		
Installer	$ 21.46	18.52
Technician	$ 31.34	20.00

Installation, testing, maintenance, operation and servicing of all sound, intercom, telephone interconnect, closed circuit TV systems, radio systems, background music systems, language laboratories, electronic carillion, antenna distribution systems, clock and program systems and low-voltage systems such as visual nurse call, audio/visual nurse call systems, doctors entrance register systems. Includes all wire and cable carrying audio, visual, data, light and radio frequency signals. Includes the installation of conduit, wiremold, or raceways in existing structures that have been occupied for six months or more where required for the protection of the wire or cable, but does not mean a complete conduit or raceway system. work covered does not include the installation of conduit, wiremold or any raceways in any new construction, or the installation of power supply outlets by means of which external electric power is supplied to any of the foregoing equipment or products

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ELEC0577-003 06/01/2019

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, and Springfield), OUTAGAMIE, WAUPACA, WAUSHARA, AND WINNEBAGO

COUNTIES

	Rates	Fringes
Electricians:	$ 33.15	28.50%+10.00

ELEC0890-003 06/01/2020

DODGE (Emmet Township only), GREEN, JEFFERSON, LAFAYETTE, RACINE (Burlington Township), ROCK AND WALWORTH COUNTIES

	Rates	Fringes
Electricians:	$ 37.41	25.95%+11.11

ELEC0953-001 06/02/2019

	Rates	Fringes
Line Construction:		
(1) Lineman	$ 47.53	21.43
(2) Heavy Equipment Operator	$ 42.78	19.80
(3) Equipment Operator	$ 38.02	18.40
(4) Heavy Groundman Driver	$ 33.27	16.88
(5) Light Groundman Driver	$ 30.89	16.11
(6) Groundsman	$ 26.14	14.60

ENGI0139-005 06/01/2020

	Rates	Fringes
Power Equipment Operator		
Group 1	$ 41.62	23.80
Group 2	$ 41.12	23.80
Group 3	$ 40.62	23.80
Group 4	$ 40.36	23.80
Group 5	$ 40.07	23.80
Group 6	$ 34.17	23.80

HAZARDOUS WASTE PREMIUMS:
EPA Level ""A"" protection - $3.00 per hour
EPA Level ""B"" protection - $2.00 per hour
EPA Level ""C"" protection - $1.00 per hour

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

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.

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 jibs lengths measuring 175 feet or under and Backhoes (excavators) weighing 130,000 lbs and over; caisson rigs; pile driver; dredge operator; dredge engineer; Boat Pilot.

GROUP 3: Mechanic or welder - Heavy duty equipment; cranes with a lifting capacity of 25 tons or under; concrete breaker (manual or remote); vibratory/sonic concrete breaker; concrete laser screed; concrete slipform paver; concrete batch plant operator; concrete pvt. spreader - heavy duty (rubber tired); concrete spreader & distributor; automatic subgrader (concrete); concrete grinder & planing machine; concrete slipform curb & gutter machine; slipform concrete placer; tube finisher; hydro blaster (10,000 psi & over); bridge paver; concrete conveyor system; concrete pump; Rotec type Conveyor; stabilizing mixer (self-propelled); shoulder widener; asphalt plant engineer; bituminious paver; bump cutter & grooving machine; milling machine; screed (bituminous paver); asphalt heater, planer & scarifier; Backhoes (excavators) weighing under 130,000 lbs; 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 & A-frames; post driver; material hoist.

GROUP 4: Greaser, roller steel (5 tons or less); roller (pneumatic tired) - self propelled; tractor (mounted or towed compactors & light equipment); shouldering machine; self- propelled chip spreader; concrete spreader; finishing machine; mechanical float; curing machine; power subgrader; joint sawer (multiple blade) belting machine; burlap machine; texturing machine; tractor endloader (rubber tired) - light; jeep digger; forklift; mulcher; launch operator; fireman, environmental burner

GROUP 5: Air compressor; power pack; vibrator hammer and extractor; heavy equipment, leadman; tank car heaters; stump chipper; curb machine operator; Concrete proportioning 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 Tender.

GROUP 6: Off-road material hauler with or without ejector.

IRON0008-002 06/01/2020

BROWN, CALUMET, DOOR, FOND DU LAC, KEWAUNEE, MANITOWOC, MARINETTE, OCONTO, OUTAGAMI, SHAWANO, SHEBOYGAN, AND WINNEBAGO COUNTIES:

	Rates	Fringes
IRONWORKER	$ 37.31	27.62

Paid Holidays: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day & Christmas Day.

IRON0008-003 06/01/2020

KENOSHA, MILWAUKEE, OZAUKEE, RACINE, WALWORTH (N.E. 2/3), WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
IRONWORKER	$ 39.11	27.87

Paid Holidays: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day & Christmas Day.

IRON0383-001 06/01/2020

ADAMS, COLUMBIA, CRAWFORD, DANE, DODGE, FLORENCE, FOREST, GRANT, GREENE, (Excluding S.E. tip), GREEN LAKE, IOWA, JEFFERSON, JUNEAU, LA CROSSE, LAFAYETTE, LANGLADE, MARATHON, MARQUETTE, MENOMINEE, MONROE, PORTAGE, RICHLAND, ROCK (Northern area, vicinity of Edgerton and Milton), SAUK, VERNON, WAUPACA, WAUSHARA, AND WOOD COUNTIES

	Rates	Fringes
IRONWORKER	$ 37.10	27.06

IRON0498-005 06/01/2019

GREEN (S.E. 1/3), ROCK (South of Edgerton and Milton), and
WALWORTH (S.W. 1/3) COUNTIES:

	Rates	Fringes
IRONWORKER	$ 40.25	40.53

IRON0512-008 06/03/2019

BARRON, BUFFALO, CHIPPEWA, CLARK, DUNN, EAU CLAIRE, JACKSON,
PEPIN, PIERCE, POLK, RUSK, ST CROIX, TAYLOR, AND TREMPEALEAU
COUNTIES

	Rates	Fringes
IRONWORKER	$ 37.60	29.40

IRON0512-021 06/03/2019

ASHLAND, BAYFIELD, BURNETT, DOUGLAS, IRON, LINCOLN, ONEIDA,
PRICE, SAWYER, VILAS AND WASHBURN COUNTIES

	Rates	Fringes
IRONWORKER	$ 33.19	29.40

LABO0113-002 06/01/2020

MILWAUKEE AND WAUKESHA COUNTIES

	Rates	Fringes
LABORER		
Group 1	$ 30.05	22.26
Group 2	$ 30.20	22.26
Group 3	$ 30.40	22.26
Group 4	$ 30.55	22.26
Group 5	$ 30.70	22.26
Group 6	$ 26.54	22.26

LABORERS CLASSIFICATIONS

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, and Utility Man); Batch Truck Dumper or Cement Handler; Bituminous Worker (Dumper, Ironer, Smoother, and Tamper); Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated); Chain Saw Operator; Demolition Burning Torch Laborer

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter (Curb, Sidewalk, and Pavement); Strike Off Man

GROUP 4: Line and Grade Specialist

GROUP 5: Blaster and Powderman

GROUP 6: Flagperson; traffic control person

LABO0113-003 06/01/2020

OZAUKEE AND WASHINGTON COUNTIES

	Rates	Fringes
LABORER		
Group 1	$ 29.30	22.26
Group 2	$ 29.40	22.26
Group 3	$ 29.45	22.26
Group 4	$ 29.65	22.26
Group 5	$ 29.50	22.26
Group 6	$ 26.39	22.26

LABORERS CLASSIFICATIONS

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, and Utility Man); Batch Truck Dumper or Cement Handler; Bituminous Worker (Dumper, Ironer, Smoother, and Tamper); Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated);

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter (Curb, Sidewalk, and Pavement); Strike Off Man

GROUP 4: Line and Grade Specialist

GROUP 5: Blaster; powderman

GROUP 6: Flagperson and Traffic Control Person

LABO0113-011 06/01/2020

KENOSHA AND RACINE COUNTIES

	Rates	Fringes
LABORER		
Group 1	$ 29.11	22.26
Group 2	$ 29.26	22.26
Group 3	$ 29.46	22.26
Group 4	$ 29.43	22.26
Group 5	$ 29.76	22.26
Group 6	$ 26.25	22.26

LABORERS CLASSIFICATIONS:

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, and Utility Man); Batch Truck Dumper or Cement Handler; Bituminous worker (Dumper, Ironer, Smoother, and Tamper); Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated); Chain Saw Operator; Demolition Burning Torch Laborer

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter (Curb, Sidewalk, and Pavement); Strike Off Man

GROUP 4: Line and Grade Specialist

GROUP 5: Blaster and Powderman

GROUP 6: Flagman; traffic control person

LABO0140-002 06/01/2020

ADAMS, ASHLAND, BARRON, BAYFIELD, BROWN, BUFFALO, BURNETT,

CALUMET, CHIPPEWA, CLARK, COLUMBIA, CRAWFORD, DODGE, DOOR, DOUGLAS, DUNN, EAU CLAIRE, FLORENCE, FOND DU LAC, FOREST, GRANT, GREEN, GREEN LAKE, IRON, JACKSON, JUNEAU, IOWA, JEFFERSON, KEWAUNEE, LA CROSSE, LAFAYETTE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE, MARQUETTE, MENOMINEE, MONROE, OCONTO, ONEIDA, OUTAGAMIE, PEPIN, PIERCE, POLK, PORTAGE, PRICE, RICHLAND, ROCK, RUSK, SAUK, SAWYER, SHAWANO, SHEBOYGAN, ST. CROIX, TAYLOR, TREMPEALEAU, VERNON, VILLAS, WALWORTH, WASHBURN, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
LABORER		
Group 1	$ 33.72	17.95
Group 2	$ 33.82	17.95
Group 3	$ 33.87	17.95
Group 4	$ 34.07	17.95
Group 5	$ 33.92	17.95
Group 6	$ 30.35	17.95

LABORER CLASSIFICATIONS

GROUP 1: General Laborer; Tree Trimmer; Conduit Layer; Demolition and Wrecking Laborer; Guard Rail, Fence, and Bridge Builder; Landscaper; Multiplate Culvert Assembler; Stone Handler; Bitminous Worker (Shoveler, Loader, and Utility Man); Batch Truck Dumper or Cement Handler; Bituminous Worker (Dumper, Ironer, Smoother and Tamper); Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated); Chain Saw Operator, Demolition Burning Torch Laborer

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter (Curb, Sidewalk and Pavement); Strike Off Man

GROUP 4: Line and Grade Secialist

GROUP 5: Blaster; powderman

GROUP 6: Flagperson; Traffic Control

LABO0464-003 06/01/2020

DANE COUNTY

	Rates	Fringes
LABORER		
Group 1	$ 34.00	17.95
Group 2	$ 34.10	17.95
Group 3	$ 34.15	17.95
Group 4	$ 34.35	17.95
Group 5	$ 34.20	17.95
Group 6	$ 30.35	17.95

LABORERS CLASSIFICATIONS:

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, and Utility Man); Batch Truck Dumper or Cement Handler; Bituminious Worker (Dumper, Ironer, Smoother, and Tamper); Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated); Chain Saw Operator; Demolition Burning Torch Laborer

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter (Curb, Sidewalk, and Pavement); Strike Off Man

GROUP 4: Line and Grade Specialist

GROUP 5: Blaster; Powderman

GROUP 6: Flagperson and Traffic Control Person

PAIN0106-008 05/01/2017

ASHLAND, BAYFIELD, BURNETT, AND DOUGLAS COUNTIES

	Rates	Fringes
Painters:		
New:		
Brush, Roller	$ 30.33	17.27
Spray, Sandblast, Steel	$ 30.93	17.27
Repaint:		
Brush, Roller	$ 28.83	17.27
Spray, Sandblast, Steel	$ 29.43	17.27

PAIN0108-002 06/01/2019

RACINE COUNTY

	Rates	Fringes
Painters:		
Brush, Roller	$ 36.08	20.36
Spray & Sandblast	$ 37.08	20.36

PAIN0259-002 05/01/2008

BARRON, CHIPPEWA, DUNN, EAU CLAIRE, PEPIN, PIERCE, POLK, RUSK, SAWYER, ST. CROIX, AND WASHBURN COUNTIES

	Rates	Fringes
PAINTER	$ 24.11	12.15

PAIN0259-004 05/01/2015

BUFFALO, CRAWFORD, JACKSON, LA CROSSE, MONROE, TREMPEALEAU, AND VERNON COUNTIES

	Rates	Fringes
PAINTER	$ 22.03	12.45

PAIN0781-002 06/01/2019

JEFFERSON, MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Painters:		
Bridge	$ 33.30	23.86
Brush	$ 32.95	23.86
Spray & Sandblast	$ 33.70	23.86

PAIN0802-002 06/01/2019

COLUMBIA, DANE, DODGE, GRANT, GREEN, IOWA, LAFAYETTE, RICHLAND, ROCK, AND SAUK COUNTIES

	Rates	Fringes
PAINTER		
Brush	$ 30.93	18.44

PREMIUM PAY:
  Structural Steel, Spray, Bridges = $1.00 additional per
  hour.

PAIN0802-003 06/01/2019

ADAMS, BROWN, CALUMET, CLARK, DOOR, FOND DU LAC, FOREST, GREEN LAKE, IRON, JUNEAU, KEWAUNEE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE, MARQUETTE, MENOMINEE, OCONTO, ONEIDA, OUTAGAMIE, PORTAGE, PRICE, SHAWANO, SHEBOYGAN, TAYLOR, VILAS, WAUSHARA, WAUPACA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
PAINTER	$ 30.93	18.58

PAIN0934-001 06/01/2017

KENOSHA AND WALWORTH COUNTIES

	Rates	Fringes
Painters:		
Brush	$ 33.74	18.95
Spray	$ 34.74	18.95
Structural Steel	$ 33.89	18.95

PAIN1011-002 06/02/2019

FLORENCE COUNTY

	Rates	Fringes
Painters:	$ 25.76	13.33

PLAS0599-010 06/01/2017

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER		
Area 1	$ 39.46	17.17
Area 2 (BAC)	$ 35.07	19.75
Area 3	$ 35.61	19.40
Area 4	$ 34.70	20.51
Area 5	$ 36.27	18.73
Area 6	$ 32.02	22.99

AREA DESCRIPTIONS

AREA 1: BAYFIELD, DOUGLAS, PRICE, SAWYER, AND WASHBURN COUNTIES

AREA 2: ADAMS, ASHLAND, BARRON, BROWN, BURNETT, CALUMET, CHIPPEWA, CLARK, COLUMBIA, DODGE, DOOR, DUNN, FLORENCE, FOND DU LAC, FOREST, GREEN LAKE, IRON, JEFFERSON, KEWAUNEE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE, MARQUETTE, MENOMINEE, OCONTO, ONEIDA, OUTAGAMIE, POLK, PORTAGE, RUSK, ST CROIX, SAUK, SHAWANO, SHEBOYGAN, TAYLOR, VILAS, WALWORTH, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

AREA 3: BUFFALO, CRAWFORD, EAU CLAIRE, JACKSON, JUNEAU, LA CROSSE MONROE, PEPIN, PIERCE, RICHLAND, TREMPEALEAU, AND VERNON COUNTIES

AREA 4: MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

AREA 5: DANE, GRANT, GREEN, IOWA, LAFAYETTE, AND ROCK COUNTIES

AREA 6: KENOSHA AND RACINE COUNTIES

TEAM0039-001 06/01/2020

	Rates	Fringes
TRUCK DRIVER		
1 & 2 Axles	$ 31.07	22.94
3 or more Axles; Euclids, Dumptor & Articulated, Truck Mechanic	$ 31.22	22.94
WELL DRILLER	$ 16.52	3.70

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide

employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

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 (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on

a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

"General Decision Number: WI20200008 10/02/2020

Superseded General Decision Number: WI20190008

State: Wisconsin

Construction Types: Heavy (Sewer and Water Line and Tunnel)

Counties: Wisconsin Statewide.

TUNNEL, SEWER & WATER LINE CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2020
1	01/24/2020
2	02/28/2020
3	03/06/2020
4	06/05/2020
5	06/12/2020
6	06/19/2020
7	07/17/2020
8	07/24/2020
9	08/28/2020

10	09/11/2020
11	09/18/2020
12	10/02/2020

BRWI0001-002 06/03/2019

CRAWFORD, JACKSON, JUNEAU, LA CROSSE, MONROE, TREMPEALEAU, AND VERNON COUNTIES

	Rates	Fringes
BRICKLAYER	$ 33.80	24.28

BRWI0002-002 06/01/2019

ASHLAND, BAYFIELD, DOUGLAS, AND IRON COUNTIES

	Rates	Fringes
BRICKLAYER	$ 39.94	23.30

BRWI0002-005 06/01/2019

ADAMS, ASHLAND, BARRON, BROWN, BURNETT, CALUMET, CHIPPEWA, CLARK, COLUMBIA, DODGE, DOOR, DUNN, FLORENCE, FOND DU LAC, FOREST, GREEN LAKE, IRON, JEFFERSON, KEWAUNEE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE, MARQUETTE, MENOMINEE, OCONTO, ONEIDA, OUTAGAMIE, POLK, PORTAGE, RUSK, ST CROIX, SAUK, SHAWANO, SHEBOYGAN, TAYLOR, VILAS, WALWORTH, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 35.51	23.37

BRWI0003-002 06/03/2019

BROWN, DOOR, FLORENCE, KEWAUNEE, MARINETTE, AND OCONTO COUNTIES

	Rates	Fringes
BRICKLAYER	$ 34.18	23.90

BRWI0004-002 06/01/2019

KENOSHA, RACINE, AND WALWORTH COUNTIES

	Rates	Fringes

BRICKLAYER.....$ 38.43 25.10

BRWI0006-002 06/01/2019

ADAMS, CLARK, FOREST, LANGLADE, LINCOLN, MARATHON, MENOMINEE, ONEIDA, PORTAGE, PRICE, TAYLOR, VILAS AND WOOD COUNTIES

	Rates	Fringes
BRICKLAYER	$ 35.06	23.02

BRWI0007-002 06/03/2019

GREEN, LAFAYETTE, AND ROCK COUNTIES

	Rates	Fringes
BRICKLAYER	$ 35.57	24.22

BRWI0008-002 06/01/2019

MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
BRICKLAYER	$ 38.93	24.22

BRWI0009-001 06/03/2019

GREEN LAKE, MARQUETTE, OUTAGAMIE, SHAWANO, WAUPACA, WASHARA, AND WINNEBAGO COUNTIES

	Rates	Fringes
BRICKLAYER	$ 34.18	23.90

BRWI0011-002 06/03/2019

CALUMET, FOND DU LAC, MANITOWOC, AND SHEBOYGAN COUNTIES

	Rates	Fringes
BRICKLAYER	$ 34.18	23.90

BRWI0013-002 06/03/2019

DANE, GRANT, IOWA, AND RICHLAND COUNTIES

	Rates	Fringes
BRICKLAYER	$ 35.56	24.23

BRWI0019-002 06/03/2019

BARRON, BUFFALO, BURNETT, CHIPPEWA, DUNN, EAU CLAIRE, PEPIN, PIERCE, POLK, RUSK, ST. CROIX, SAWYER AND WASHBURN COUNTIES

	Rates	Fringes
BRICKLAYER	$ 33.40	24.68

BRWI0021-002 06/03/2019

DODGE AND JEFFERSON COUNTIES

	Rates	Fringes
BRICKLAYER	$ 35.75	24.02

BRWI0034-002 06/03/2019

COLUMBIA AND SAUK COUNTIES

	Rates	Fringes
BRICKLAYER	$ 35.56	24.23

CARP0087-001 05/01/2016

BURNETT (W. of Hwy 48), PIERCE (W. of Hwy 29), POLK (W. of Hwys 35, 48 & 65), AND ST. CROIX (W. of Hwy 65) COUNTIES

	Rates	Fringes
Carpenter & Piledrivermen	$ 36.85	18.39

CARP0252-002 06/01/2016

ADAMS, BARRON, BAYFIELD (Eastern 2/3), BROWN, BUFFALO, BURNETT (E. of Hwy 48), CALUMET, CHIPPEWA, CLARK, COLUMBIA, CRAWFORD, DANE, DODGE, DOOR, DUNN, EAU CLAIRE, FLORENCE (except area bordering Michigan State Line), FOND DU LAC, FOREST, GRANT, GREEN, GREEN LAKE, IOWA, IRON, JACKSON, JEFFERSON, JUNEAU, KEWAUNEE, LA CROSSE, LAFAYETTE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE (except N.E. corner), MARQUETTE,

MENOMINEE, MONROE, OCONTO, ONEIDA, OUTAGAMIE, PEPIN, PIERCE (E. of Hwys 29 & 65), POLK (E. of Hwys 35, 48 & 65), PORTAGE, PRICE, RICHLAND, ROCK, RUSK, SAUK, SAWYER, SHAWANO, SHEBOYGAN, ST CROIX (E. of Hwy 65), TAYLOR, TREMPEALEAU, VERNON, VILAS, WALWORTH, WASHBURN, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
CARPENTER		
CARPENTER	$ 33.56	18.00
MILLWRIGHT	$ 35.08	18.35
PILEDRIVER	$ 34.12	18.00

CARP0252-010 06/01/2016

ASHLAND COUNTY

	Rates	Fringes
Carpenters		
Carpenter	$ 33.56	18.00
Millwright	$ 35.08	18.35
Pile Driver	$ 34.12	18.00

CARP0264-003 06/01/2016

KENOSHA, MILWAUKEE, OZAUKEE, RACINE, WAUKESHA, AND WASHINGTON COUNTIES

	Rates	Fringes
CARPENTER	$ 35.78	22.11

CARP0361-004 05/01/2018

BAYFIELD (West of Hwy 63) AND DOUGLAS COUNTIES

	Rates	Fringes
CARPENTER	$ 36.15	20.43

CARP2337-001 06/01/2016

ZONE A: MILWAUKEE, OZAUKEE, WAUKESHA AND WASHINGTON

ZONE B: KENOSHA & RACINE

	Rates	Fringes
PILEDRIVERMAN		
Zone A	$ 31.03	22.69
Zone B	$ 31.03	22.69

CARP2337-003 06/01/2019

	Rates	Fringes
MILLWRIGHT		
Zone A	$ 33.58	21.53
Zone B	$ 33.58	21.53

ZONE DEFINITIONS

ZONE A: MILWAUKEE, OZAUKEE, WAUKESHA AND WASHINGTON COUNTIES

ZONE B: KENOSHA & RACINE COUNTIES

ELEC0014-002 06/14/2020

ASHLAND, BARRON, BAYFIELD, BUFFALO, BURNETT, CHIPPEWA, CLARK (except Maryville, Colby, Unity, Sherman, Fremont, Lynn & 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

	Rates	Fringes
Electricians:	$ 35.98	20.98

ELEC0127-002 06/01/2020

KENOSHA COUNTY

	Rates	Fringes
Electricians:	$ 41.62	30%+12.70

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* ELEC0158-002 06/01/2020

BROWN, DOOR, KEWAUNEE, MANITOWOC (except Schleswig), MARINETTE(Wausuakee and area South thereof), OCONTO, MENOMINEE (East of a ine 6 miles West of the West boundary of Oconto County), SHAWANO (Except Area North of Townships of Aniwa and

Hutchins) COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 34.77	29.75%+10.26

ELEC0159-003 08/02/2020

COLUMBIA, DANE, DODGE (Area West of Hwy 26, except Chester and 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

	Rates	Fringes
ELECTRICIAN	$ 41.86	22.67

ELEC0219-004 06/01/2019

FLORENCE COUNTY (Townships of Aurora, Commonwealth, Fern, Florence and Homestead) AND MARINETTE COUNTY (Township of Niagara)

	Rates	Fringes
Electricians:		
Electrical contracts over $180,000	$ 33.94	21.80
Electrical contracts under $180,000	$ 31.75	21.73

* ELEC0242-005 05/31/2020

DOUGLAS COUNTY

	Rates	Fringes
Electricians:	$ 39.77	28.11

ELEC0388-002 06/01/2020

ADAMS, CLARK (Colby, Freemont, Lynn, Mayville, Sherman, Sherwood, Unity), FOREST, JUNEAU, LANGLADE, LINCOLN, MARATHON, MARINETTE (Beecher, Dunbar, Goodman & Pembine), MENOMINEE (Area West of a line 6 miles West of the West boundary of Oconto County), ONEIDA, PORTAGE, SHAWANO (Aniwa and Hutchins), VILAS

AND WOOD COUNTIES

	Rates	Fringes
Electricians:	$ 34.85	26%+11.20

ELEC0430-002 06/01/2020

RACINE COUNTY (Except Burlington Township)

	Rates	Fringes
Electricians:	$ 41.86	22.66

ELEC0494-005 06/01/2020

MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Electricians:	$ 42.84	25.54

ELEC0494-006 06/01/2020

CALUMET (Township of New Holstein), DODGE (East of Hwy 26 including Chester Township), FOND DU LAC, MANITOWOC (Schleswig), and SHEBOYGAN COUNTIES

	Rates	Fringes
Electricians:	$ 36.32	22.51

ELEC0577-003 06/01/2019

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, and Springfield), OUTAGAMIE, WAUPACA, WAUSHARA, AND WINNEBAGO COUNTIES

	Rates	Fringes
Electricians:	$ 33.15	28.50%+10.00

ELEC0890-003 06/01/2020

DODGE (Emmet Township only), GREEN, JEFFERSON, LAFAYETTE,

RACINE (Burlington Township), ROCK AND WALWORTH COUNTIES

	Rates	Fringes
Electricians:	$ 37.41	25.95%+11.11

ENGI0139-003 06/01/2020

REMAINING COUNTIES

	Rates	Fringes
Power Equipment Operator		
Group 1	$ 42.92	23.15
Group 2	$ 41.67	23.15
Group 3	$ 39.97	23.15
Group 4	$ 39.44	23.15
Group 5	$ 37.37	23.15
Group 6	$ 35.84	23.15

HAZARDOUS WASTE PREMIUMS:
EPA Level ""A"" Protection: $3.00 per hour
EPA Level ""B"" Protection: $2.00 per hour
EPA Level ""C"" Protection: $1.00 per hour

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Cranes, Tower Cranes and Derricks with or without attachments with a lifting capacity of over 100 tons; Cranes, Tower Cranes, and Derricks with boom, leads and/or jib lengths 176 ft or longer.

GROUP 2: Backhoes (Excavators) weighing 130,00 lbs and over; Cranes, Tower Cranes and Derricks with or without attachments with a lifting capacity of 100 tons or less; Cranes, Tower Cranes, and Derricks with boom, leads, and/or jib lengths 175 ft or less; Caisson Rigs; Pile Driver

GROUP 3: Backhoes (Excavators) weighing under 130,000 lbs; Travelling Crane (bridge type); Milling Machine; Concrete Paver over 27 E; Concrete Spreader and Distributor; Concrete Laser Screed; Concrete Grinder and Planing Machine; Slipform Curb and Gutter Machine; Boring Machine (Directional); Dredge Operator; Skid Rigs; over 46 meter Concrete Pump.

GROUP 4: Hydraulic Backhoe (tractor or truck mounted); Hydraulic Crane, 10 tons or less; Tractor, Bulldozer, or End Loader (over 40 hp); Motor Patrol; Scraper Operator;

Bituminous Plant and Paver Operator; Screed-Milling Machine; Roller over 5 tons; Concrete pumps 46 meter and under; Grout Pumps; Rotec type machine; Hydro Blaster, 10,000 psi and over; Rotary Drill Operator; Percussion Drilling Machine; Air Track Drill with or without integral hammer; Blaster; Boring Machine (vertical or horizontal); Side Boom; Trencher, wheel type or chain type having 8 inch or larger bucket; Rail Leveling Machine (Railroad); Tie Placer; Tie Extractor; Tie Tamper; Stone Leveler; Straddle Carrier; Material Hoists; Stack Hoist; Man Hoists; Mechanic and Welder; Off Road Material Haulers.

GROUP 5: Tractor, Bulldozer, or Endloader (under 40 hp); Tampers -Compactors, riding type; Stump Chipper, large; Roller, Rubber Tire; Backfiller; Trencher, chain type (bucket under 8 inch); Concrete Auto Breaker, large; Concrete Finishing Machine (road type); Concrete Batch Hopper; Concrete Conveyor Systems; Concrete Mixers, 14S or over; Pumps, Screw Type and Gypsum); Hydrohammers, small; Brooms and Sweeeprs; Lift Slab Machine; Roller under 5 tons; Industrial Locomotives; Fireman (Pile Drivers and Derricks); Pumps (well points); Hoists, automatic; A-Frames and Winch Trucks; Hoists (tuggers); Boats (Tug, Safety, Work Barges and Launches); Assistant Engineer

GROUP 6: Shouldering Machine Operator; Farm or Industrial Tractor mounted equipment; Post Hole Digger; Auger (vertical and horizontal); Skid Steer Loader with or without attachments; Robotic Tool Carrier with or without attachments; Power Pack Vibratory/Ultra Sound Driver and Extractor; Fireman (Asphalt Plants); Screed Operator; Stone Crushers and Screening Plants; Air, Electric, Hydraulic Jacks (Slip Form); Prestress Machines; Air Compressor, 400 CFM or over; Refrigeration Plant/Freese Machine; Boiler Operators (temporary heat); Forklifts; Welding Machines; Generators; Pumps over 3""; Heaters, Mechanical; Combination small equipment operator; Winches, small electric; Oiler; Greaser; Rotary Drill Tender; Conveyor; Elevator Operator

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ENGI0139-007 06/01/2020

DODGE, FOND DU LAC, JEFFERSON, KENOSHA, MILWAUKEE, OZAUKEE, RACINE, SHEBOYGAN, WALWORTH, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Power Equipment Operator		
Group 1	$ 41.64	23.25

Group 2	$ 40.86	23.25
Group 3	$ 39.91	23.25
Group 4	$ 38.86	23.25
Group 5	$ 37.46	23.25

HAZARDOUS WASTE PREMIUMS:
EPA Level ""A"" Protection: $3.00 per hour
EPA Level ""B"" Protection: $2.00 per hour
EPA Level ""C"" Protection: $1.00 per hour

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

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; Backhoes (Excavators) 130,000 lbs and over; Caisson Rigs and Pile Drivers

GROUP 2: Cranes, Tower Cranes and Derricks with or without attachments with a lifting capacity of 100 tons or under; or Cranes, Tower Cranes, and Derricks with boom, lead, and\or jib lengths measuring 175 feet or under; Backhoes (Excavators) under 130,000 lbs; Skid Rigs; Dredge Operator: Traveling Crane (Bridge type); Concrete Paver over 27 E; Concrete Spreader and Distributor; Concrete Pumps and Boring Machines (directional)

GROUP 3: Material Hoists; Stack Hoists; Tractor or Truck mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane, 5 tons or under; Manhoist; Tractor over 40 hp; Bulldozer over 40 hp; Endloader over 40 hp; Forklift, 25 ft and over; Motor Patrol; Scraper Operator; Sideboom; Straddle Carrier; Mechanic and Welder; Bituminous Plant and Paver Operator; Roller over 5 tons; Percussion Drill Operator; Rotary Drill Operator; Blaster; Air Track Drill; Trencher (wheel type or chain type having over 8 inch bucket); Elevator; Milling Machine and Boring Machine (horizontal or vertical); Backhoe Mounted Compactor

GROUP 4: Backfiller; Concrete Auto Breaker (large); Concrete Finishing Machine (road type); Roller, Rubber Tire; Concrete Batch Hopper; Concrete Conveyor System; Concrete Mixers (14S or over); Screw type Pumps and Gypsum Pumps; Grout Pumps; Tractor, Bulldozer, End Loader, under 40 hp; Pumps (well points); Trencher (chain type 8 inch or smaller bucket; Industrial Locomotives; Roller under 5 tons; Fireman (Piledrivers and Derricks); Robotic Tool Carrier with or without attachments.

GROUP 5: Hoists (Automatic); Forklift, 12 ft to 25 ft; Tamper-Compactors, riding type; A-Frame andWinch Trucks; Concrete Auto Breaker; Hydrohammer, small; Brooms and Sweepers; Hoist (Tuggers); Stump Chipper, large; Boats (Tug, Safety, Work Barges and Launch); Shouldering Machine Operator; Screed Operator; Farm or Industrial Tractor; Post Hole Digger; Stone Crushers and Screening Plants; Firemen (Asphalt Plants); Air Compressor (400 CFM or over); Augers (vertical and horizontal); Generators, 150 KW and over; Air, Electric Hydraulic Jacks (Slipform); Prestress Machines; Skid Steer Loader with or without attachments; Boiler operators (temporary heat); Forklift, 12 ft and under; Screed Operator Milling Machine; Refrigeration Plant/Freeze Machine; Power Pack Vibratory/Ultra Sound Driver and Extractor; Generators under 150 KW; Combination small equipment operator; Compressors under 400 CFM; Welding Machines; Heaters, Mechanical; Pumps; Winches, Small Electric; Oiler and Greaser; Conveyor; High pressure utility locating machine (daylighting machine).

IRON0008-002 06/01/2020

BROWN, CALUMET, DOOR, FOND DU LAC, KEWAUNEE, MANITOWOC, MARINETTE, OCONTO, OUTAGAMI, SHAWANO, SHEBOYGAN, AND WINNEBAGO COUNTIES:

	Rates	Fringes
IRONWORKER	$ 37.31	27.62

Paid Holidays: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day & Christmas Day.

IRON0008-003 06/01/2020

KENOSHA, MILWAUKEE, OZAUKEE, RACINE, WALWORTH (N.E. 2/3), WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
IRONWORKER	$ 39.11	27.87

Paid Holidays: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day & Christmas Day.

IRON0383-001 06/01/2020

ADAMS, COLUMBIA, CRAWFORD, DANE, DODGE, FLORENCE, FOREST, GRANT, GREENE, (Excluding S.E. tip), GREEN LAKE, IOWA, JEFFERSON, JUNEAU, LA CROSSE, LAFAYETTE, LANGLADE, MARATHON, MARQUETTE, MENOMINEE, MONROE, PORTAGE, RICHLAND, ROCK (Northern area, vicinity of Edgerton and Milton), SAUK, VERNON, WAUPACA, WAUSHARA, AND WOOD COUNTIES

	Rates	Fringes
IRONWORKER	$ 37.10	27.06

IRON0498-005 06/01/2019

GREEN (S.E. 1/3), ROCK (South of Edgerton and Milton), and WALWORTH (S.W. 1/3) COUNTIES:

	Rates	Fringes
IRONWORKER	$ 40.25	40.53

IRON0512-008 06/03/2019

BARRON, BUFFALO, CHIPPEWA, CLARK, DUNN, EAU CLAIRE, JACKSON, PEPIN, PIERCE, POLK, RUSK, ST CROIX, TAYLOR, AND TREMPEALEAU COUNTIES

	Rates	Fringes
IRONWORKER	$ 37.60	29.40

IRON0512-021 06/03/2019

ASHLAND, BAYFIELD, BURNETT, DOUGLAS, IRON, LINCOLN, ONEIDA, PRICE, SAWYER, VILAS AND WASHBURN COUNTIES

	Rates	Fringes
IRONWORKER	$ 33.19	29.40

LABO0113-004 06/01/2020

MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes

Laborers: (Open Cut)

Group 1	$ 16.38	21.08
Group 2	$ 18.65	21.08
Group 3	$ 22.19	21.08
Group 4	$ 31.56	21.08
Group 5	$ 31.70	21.08
Group 6	$ 31.76	21.08
Group 7	$ 34.77	21.08
Group 8	$ 37.59	21.08
Group 9	$ 38.23	21.08

LABORERS CLASSIFICATIONS [OPEN CUT]

GROUP 1: Yard Laborer

GROUP 2: Landscaper

GROUP 3: Flag Person

GROUP 4: Paving Laborer

GROUP 5: General Laborer on Surface; Top Man

GROUP 6: Mud Mixer

GROUP 7: Mucker; Form Stripper; Bottom Digger and Misc; Bottom Man and Welder on Surface

GROUP 8: Concrete Manhole Builder; Caisson Worker; Miner; Pipe Layer; Rock Driller and Joint Man; Timber Man and Concrete Brusher; Bracer in Trench Behind Machine & Tight Sheeting; Concrete Formsetter and Shoveler; Jackhammer Operator

GROUP 9: Blaster

LABO0113-005 06/01/2020

SEWER, TUNNEL & UNDERGROUND

KENOSHA AND RACINE COUNTIES

	Rates	Fringes
Laborers:		
Group 1	$ 23.05	21.08
Group 2	$ 28.98	21.08
Group 3	$ 32.34	21.08

Group 4.....$ 34.11 21.08

TUNNEL WORK UNDER COMPRESSED AIR: 0-15 lbs add $1.00, 15-30 lbs add $2.00, over 30 lbs add $3.00

LABORERS CLASSIFICATIONS

GROUP 1: Flagperson

GROUP 2: Top Man, General Laborer, Wellpoint Installation, Wire Mesh and Reinforcement, Concrete Worker, Form Stripper, Strike-off Work

GROUP 3: Machine and Equipment Operator, Sheeting, Form Setting, Patch Finisher, Bottom Man, Joint Sawer, Gunnite Man, Manhole Builder, Welder-Torchman, Blaster, Caulker, Bracer, Bull Float, Conduit Worker, Mucker and Car Pusher, Raker and Luteman, Hydraulic Jacking of Shields, Shield Drivers, Mining Machine, Lock Tenders, Mucking Machine Operator, Motor Men & Gauge Tenders and operation of incidental Mechanical Equipment and all Power Driven Tools

GROUP 4: Pipelayer, Miner and Laser Operator

LABO0113-008 06/01/2020

MILWAUKEE, OZAUKEE, WASHINGTON & WAUKESHA COUNTIES

	Rates	Fringes
Laborers: (Tunnel-Free Air)		
Group 1	$ 22.19	21.08
Group 2	$ 31.70	21.08
Group 3	$ 31.76	21.08
Group 4	$ 34.77	21.08
Group 5	$ 34.91	21.08
Group 6	$ 37.59	21.08
Group 7	$ 38.23	21.08

LABORERS CLASSIFICATIONS [TUNNEL - FREE AIR]:

GROUP 1: Flagperson

GROUP 2: General Laborer on surface; Tower Man

GROUP 3: Saw Man; Top Man

GROUP 4: Form Stripper; Car Pusher

GROUP 5: Mucker; Dinkey; Welder (rate on surface)

  GROUP 6: Concrete Manhole Builder; Mucking Machine; Miner; Mining Machine; Welder; Rock Driller; Concrete Buster; Jack Hammer Operator; Caisson Worker; Pipelayer and Joint Man; Bracerman

GROUP 7: Blaster

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* LABO0113-009 06/01/2020

MILWAUKEE, OZAUKEE, WASHINGTON & WAUKESHA COUNTIES

	Rates	Fringes
Laborers: (Tunnel - *COMPRESSED AIR 0 - 15 lbs.)		
Group 1	$ 22.19	21.08
Group 2	$ 31.70	21.08
Group 3	$ 35.31	21.08
Group 4	$ 36.11	21.08
Group 5	$ 36.23	21.08
Group 6	$ 38.93	21.08
Group 7	$ 39.55	21.08

LABORERS CLASSIFICATIONS [TUNNEL - COMPRESSED AIR]:

  *Compressed Air 15 - 30 lbs add $2.00 to all classifications
  *Compressed Air over 30 lbs add $3.00 to all classifcations

GROUP 1: Flagperson

GROUP 2: General Laborer on surface

GROUP 3: Lock Tender on surface

GROUP 4: Form Stripper; Car Pusher

GROUP 5: Mucker; Dinkey

  GROUP 6: Mucking Machine; Miner; Mining Machine; Welder & Rock Driller; Lock Tender in tunnel; Concrete Buster; Jack Hammer Operator; Caisson Worker; Pielayer and Joint Man; Bracerman; Nozzle Man on Gunite; Timber Man; Concrete Brusher

GROUP 7: Blaster

NOTE: Hazardous & Toxic Waste Removal: add $0.15 per hour.

LABO0140-005 06/01/2020

ADAMS, ASHLAND, BARRON, BROWN, BUFFALO, CALUMET, CHIPPEWA, CLARK, COLUMBIA, CRAWFORD, DODGE, DOOR, DUNN, EAU CLAIRE, FLORENCE,FOND DU LAC, FOREST, GRANT, GREEN, GREEN LAKE, IOWA, JACKSON, JEFFERSON, JUNEAU, LACROSSE, LAFAYETTE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE, MARQUETTE, MENOMINEE, MONROE, OCONTO, ONEIDA, OUTAGAMIE, PEPIN, PIERCE, POLK, PORTAGE, PRICE, RICHLAND, ROCK, RUSK, ST CROIX, SAUK, SAWYER, SHAWANO, SHEBOYGAN, TAYLOR, TREMMPEALEAU, VERNON, VILAS, WALWWORTH, WASHBURN, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
LABORER (SEWER & WATER)		
Group 1	$ 29.33	17.88
Group 2	$ 31.18	17.88
Group 3	$ 31.48	17.88
Group 4	$ 32.13	17.88

FOR ALL TUNNEL WORK UNDER COMPRESSED AIR: 0-15 lbs add $1.00, 15-30 lbs add $2.00, over 30 lbs add $3.00

LABORER CLASSIFICATIONS:

GROUP 1: Flagperson

GROUP 2: General Laborer, Wellpoint Installation; Form Stripper; Strike Off worker

GROUP 3: Sheeting Formsetting; Patch Finisher; Bottom Man; Joint Sawer; Gunnite Man; Manhole Builder; Welder; Torchman; Blaster; Caulker Bracer; Bull Float; Mucker and Car Pusher; Raker and Luteman; Hydraulic jacking of shields, Shield Drivers; Mining Machine; Lock Tenders; Mucking Machine Operators; Motor Men and Gauge Tenders; Power Tool Operators

GROUP 4: Pipelayer, Miner, and Laser Operator

LABO0464-002 06/01/2020

DANE AND DOUGLAS COUNTIES

	Rates	Fringes
LABORER		
Group 1	$ 29.23	17.88
Group 2	$ 31.43	17.88
Group 3	$ 31.63	17.88
Group 4	$ 32.38	17.88

FOR ALL TUNNEL WORK UNDER COMPRESSED AIR: 0 - 15 lbs add $1.00, 15- 30 lbs add $2.00, over 30 lbs add $3.00

LABORERS CLASSIFICATIONS:

GROUP 1: Flagperson

GROUP 2: General Laborer; Wellpoint Installation; Concrete Worker; Form Stripper; Strike Off worker

GROUP 3: Sheeting Formsetting; Patch Finisher; Bottom Man; Joint Sawer; Gunnite Man; Manhole Builder; Welder; Torchman; Blaster; Caulker Bracer; Bull Float; Mucker and Car Pusher; Raker and Luteman; Hydraulic jacking of shields, Shield Dirvers; Mining Machine; Lock Tenders; Mucking Machine Operators; Motor Men and Gauge Tenders; Power Tool Operators

GROUP 4: Pipelayer, Miner, and Laser Operator

LABO1091-010 06/01/2020

BAYFIELD, BURNETT, IRON, SAWYER, AND WASHBURN COUNTIES

	Rates	Fringes
Laborers: (SEWER & WATER)		
Group 1	$ 29.02	17.88
Group 2	$ 31.08	17.88
Group 3	$ 31.28	17.88
Group 4	$ 32.03	17.88

FOR ALL TUNNEL WORK UNDER COMPRESSED AIR:
0 - 15 lbs add $1.00, 15-30 lbs add $2.00, over 30 lbs add $3.00

LABORERS CLASSIFICATIONS:

GROUP 1: Flagperson

GROUP 2: Laborers, Wellpoint Installation; Form Stripper; Strike Off worker

GROUP 3: Sheeting Formsetting; Patch Finisher; Bottom Man; Joint Sawer; Gunnite Man; Manhole Builder; Welder; Torchman; Blaster; Caulker Bracer; Bull Float; Mucker and Car Pusher; Raker and Luteman; Hydraulic jacking of shields, Shield Dirvers; Mining Machine; Lock Tenders; Mucking Machine Operators; Motor Men and Gauge Tenders; Power Tool Operators

GROUP 4: Pipelayer, Miner, and Laser Operator

PLAS0599-010 06/01/2017

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER		
Area 1	$ 39.46	17.17
Area 2 (BAC)	$ 35.07	19.75
Area 3	$ 35.61	19.40
Area 4	$ 34.70	20.51
Area 5	$ 36.27	18.73
Area 6	$ 32.02	22.99

AREA DESCRIPTIONS

AREA 1: BAYFIELD, DOUGLAS, PRICE, SAWYER, AND WASHBURN COUNTIES

AREA 2: ADAMS, ASHLAND, BARRON, BROWN, BURNETT, CALUMET, CHIPPEWA, CLARK, COLUMBIA, DODGE, DOOR, DUNN, FLORENCE, FOND DU LAC, FOREST, GREEN LAKE, IRON, JEFFERSON, KEWAUNEE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE, MARQUETTE, MENOMINEE, OCONTO, ONEIDA, OUTAGAMIE, POLK, PORTAGE, RUSK, ST CROIX, SAUK, SHAWANO, SHEBOYGAN, TAYLOR, VILAS, WALWORTH, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

AREA 3: BUFFALO, CRAWFORD, EAU CLAIRE, JACKSON, JUNEAU, LA CROSSE MONROE, PEPIN, PIERCE, RICHLAND, TREMPEALEAU, AND VERNON COUNTIES

AREA 4: MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

AREA 5: DANE, GRANT, GREEN, IOWA, LAFAYETTE, AND ROCK

COUNTIES

AREA 6: KENOSHA AND RACINE COUNTIES

TEAM0039-001 06/01/2020

	Rates	Fringes
TRUCK DRIVER		
1 & 2 Axles	$ 31.07	22.94
3 or more Axles; Euclids, Dumptor & Articulated, Truck Mechanic	$ 31.22	22.94
WELL DRILLER	$ 16.52	3.70

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

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 (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an

interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

Wisconsin Department of Transportation

Division of Transportation Systems Development
Bureau of Project Development
4822 Madison Yards Way, 4th Floor South
Madison, WI 53705

Telephone: (608) 266-1631
Facsimile (FAX): (608) 266-8459

September 15, 2020

NOTICE TO ALL CONTRACTORS:

Proposal #01:

1060-33-84, WISC 2020 466
Zoo IC, USH 45
Swan Blvd to Burleigh Street
USH 45
Milwaukee County

1060-34-77
Zoo IC, North Avenue
118th Street to 116th Street
Loc Str
Milwaukee County

1100-18-73, WISC 2021 001
Zoo IC, Polymer Overlays
Zoo IC Mainline Bridges
Var Hwy
Milwaukee County

1100-18-76, WISC 2002 467
Zoo I/C Overpasses
Various Locations
Var Hwy
Milwaukee County

Letting of October 13, 2020

This is Addendum No. 01, which provides for the following:

This addendum replaces ASP-6 with the attached ASP-6 that is Effective with the October 2020 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

END OF ADDENDUM

Additional Special Provision 6
ASP 6 - Modifications to the standard specifications

Make the following revisions to the standard specifications:

102.1 Prequalifying Bidders

Replace paragraph two with the following effective with the October 2020 letting:

(2) Furnish a dated prequalification statement on the department's form at least 10 business days before the time set for the letting to close.

102.6 Preparing the Proposal

Replace the entire text with the following effective with the October 2020 letting:

102.6.1 General

(1) Submit completed proposals on the department's bidding proposal described in 102.2. Submit legible information only. Write everything in ink, by typewriter, or by computer-controlled printer. Provide all dollar amounts in dollars and cents, in numerals. Attach all addenda to the submitted proposal.

(2) Properly execute the proposal. Place the required signatures, in ink, in the space provided on the bidding proposal as indicated below:

ENTITY SUBMITTING PROPOSAL	REQUIRED SIGNATURE
Individual	The individual or a duly authorized agent.
Partnership	A partner or a duly authorized agent.
Joint venture	A member or a duly authorized agent of at least one of the joint venture firms.
Corporation	An authorized officer or duly authorized agent of the corporation. Also show the name of the state chartering that corporation and affix the corporate seal.
Limited liability company	A manager, a member, or a duly authorized agent.

(3) Instead of using the schedule of items provided on the department's bidding proposal, the bidder may submit a substitute schedule with the proposal. Use a format for the substitute schedule conforming to the department’s guidelines for approval of a bidder-generated schedule of items. Obtain the department’s written approval before using a substitute schedule.

(4) Provide a unit price for each bid item listed in the schedule of items. Calculate and show, in the bid amount column, the products of the respective unit prices and quantities. For a lump sum bid item, show the same price in the unit price column and in the bid amount column pertaining to that bid item. Show the total bid obtained by adding the values entered in the bid amount column for the listed bid items.

(5) If a unit price or lump sum bid already entered in the proposal needs to be altered, cross out the entered unit price or lump sum bid with ink or typewriter and enter the new price above or below and initial it in ink.

(6) A change that the bidder makes in the proposal is not an alteration if the bidder makes that change as directed in a specific instruction contained in an addendum.

102.6.2 Disadvantaged Business Enterprise (DBE) Commitment

(1) Before the letting is closed, submit the following documentation for proposals with a DBE goal:

1. Commitment to subcontract to DBE on department form DT1506.
2. Attachment A for each subcontractor listed on the DT1506.
3. If the DBE goal is not attained, certificate of good faith efforts on department form DT1202.

(2) Within 24 hours after the letting is closed, email all supplemental documentation for the DT1202 verifying efforts made to attain the DBE goal to DBE_Alert@dot.wi.gov.

102.7.3 Department Will Reject

Replace paragraph one with the following effective with the October 2020 letting:

(1) Proposals are irregular and the department will reject and will not post them if the bidder:

1. Does not furnish the required proposal guaranty in the proper form and amount as specified in 102.8.
2. Does not submit a unit price for each bid item listed, except for lump sum bid items where the bidder may show the price in the bid amount column for that bid item.
3. Includes conditions or qualifications not provided for in the department-supplied bidding proposal.
4. Submits a bid on a bidding proposal issued to a different bidder without obtaining departmental authorization to do so.
5. Submits a bid that contains unauthorized revisions in the name of the party to whom the bidding proposal was issued.
6. Submits a schedule of items with illegibly printed bid item numbers, descriptions, or unit prices.
7. Submits a schedule of items for the wrong contract.
8. Submits a bidder-generated schedule of items with an incorrect bid item number and incorrect description for a single bid item.
9. Omits a bid item or bid items on a bidder-generated schedule of items.
10. Submits a materially unbalanced bid.
11. Does not sign the proposal.
12. Does not submit the DBE forms and required supplemental documentation of the good faith efforts as specified in 102.6.2.

102.12 Public Opening of Proposals

Replace paragraph one with the following effective with the October 2020 letting:

(1) The letting will close at the time and place indicated in the notice to contractors. The department will publicly open and post the total bid for each proposal on the Bid Express web site beginning at noon on the day after the letting is closed except as specified in 102.7.3 and 102.8. If a proposal has no total bid shown, the department will not post the bid. After verification for accuracy under 103.1, the department will post bid totals on the HCCI web site.

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

103.1 Consideration of Proposals

Replace paragraph one with the following effective with the October 2020 letting:

(1) Following the public opening of the proposals received, the department will compare them based on the summation of the products of the quantities of work listed and the contract unit prices offered. In case of discrepancies, errors, or omissions, the department will make corrections as specified in 102.7.1. In awarding contracts, the department, in addition to considering the amounts stated in the proposals, may consider one or more of the following:

1. The responsibility of the various bidders as determined from a study of the data required under 102.1.
2. The responsiveness of the bid as determined under 102.6.
3. Information from other investigations that the department may make.

104.3 Contractor Notification

Replace the entire text with the following effective with the December 2019 letting:

104.3.1 General

(1) Subsection 104.3 specifies the step-by-step communication process to be followed to expedite the resolution of potential contract revisions identified by the contractor. Both contractor actions and department responses are outlined. The contractor's non-compliance with the requirements of 104.3 may constitute a waiver of entitlement to a pay adjustment under 109.4 or a time extension under 108.10. The department and contractor can mutually agree to extend any time frame specified throughout 104.3.

104.3.2 Contractor Initial Oral Notification

(1) If required by 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, the contractor must promptly provide oral notification to the project engineer. Upon notification, the project engineer will attempt to resolve the identified issue.

104.3.3 Contractor 5-Day Written Statement

(1) If the project engineer has not responded or resolved the identified issue within 5 business days after receipt of initial notification, provide a contractor written statement to the project engineer in the following format:

Part 1 - Executive Summary *(label page 1.1 through page 1.x)*

Include a detailed, factual statement of the request for additional compensation and contract time. Include the date the issue was identified, the date initial notification was given to the project engineer, and the dates and specific locations of work involved.

Part 2 - Contractor's Basis of Entitlement *(label page 2.1 through page 2.x)*

Include references to relevant contract provisions and a narrative summarizing how the contract provisions support the request for a revision to the original contract.

Part 3 - Contractor's Request for Damages *(label page 3.1 through page 3.x)*

When requesting additional compensation, include an itemized list of costs with a narrative supporting the requested amount and explaining how the costs are tied to the requested contract revision.

When requesting additional contract time, include a copy of the schedule that was in effect when the issue occurred and a detailed narrative explaining how the issue impacted controlling items of work. Provide a time impact analysis utilizing base and updated schedules.

If the full extent of either compensation or time is not known at the date of submittal of the contractor 5-Day written statement, provide a brief statement as to why, and include estimated compensation and time.

Part 4 - Supporting Documentation *(label page 4.1 through page 4.x)*

Include copies of the following:

A. Relevant excerpts from specifications, special provisions, plans, change orders, or other contract documents.

B. Communication on the issue, including: letters, e-mails, meeting minutes, etc.

C. Any other documentation to support or clarify the contractor's position, including: daily work records, cost summary sheets, weigh tickets, test results, sketches, etc.

(2) With the submittal of the written statement, the contractor may also request a meeting with the region.

104.3.4 Region One-Day Written Acknowledgment

(1) Within one business day after the contractor provides the 5-day written statement, the project engineer will provide a region one-day written acknowledgment to the contractor. The project engineer will continue to resolve the issue.

104.3.5 Region 5-Day Written Response

(1) Within 5 business days after receiving the contractor 5-day written statement, the project engineer may request specific additional information to allow the project engineer to decide whether item 1 or 2 of 104.3.6(1) applies. The project engineer will state the information needed and date it is to be received for further review. Submit additional information as an amendment to the contractor 5-day written statement.

104.3.6 Region Final Decision

(1) Within 10 business days after receiving the contractor 5-day written statement or additional information requested in 104.3.5(1), whichever comes last, the region will consider all information and provide a region final decision in writing to the contractor with one or more of the following responses:

1. The region will confirm that the contractor is entitled to a contract revision and a contract change order is necessary as specified in 104.2. The project engineer will give direction concerning the potential change.
2. The region will deny that the contractor is entitled to a contract revision. The project engineer will provide a statement as to why the issue is not a change to the contract. At a minimum, the project engineer will respond to the contractor's issues and refer to the contract to show why the issues are not a change from the original contract.

(2) If the contractor does not agree with the region's decision the contractor may pursue the issue as a claim as specified in 105.13. Alternatively, if the contractor and department mutually agree, the

department will get a third-party advisory opinion according to the department's dispute resolution procedures.

(3) If a third party reviews the issue, their recommendation is not binding on either party. The region has 10 business days after receipt of the third party's written recommendation to render a decision. If the department fails to respond in writing within those 10 business days or the contractor disagrees with the region's decision, the contractor may pursue the issue as a claim as specified in 105.13.

104.6.1.2.1 General

Replace paragraph one with the following effective with the December 2019 letting:

(1) Conduct construction operations and provide facilities required to maintain the portion of the project open to the public in a condition that safely and adequately accommodates public traffic. Use barricades, signs, flaggers, and temporary barrier as specified in part VI, of the WMUTCD and ensure that the contractor's use of the right-of-way conforms to 107.9. Throughout the life of the contract, and as the engineer directs, conduct construction operations and provide facilities as follows:

- Conduct flagging operations conforming to plan details and the department's flagging handbook.
- Use drums, barricades, and temporary barrier to delineate and shield abrupt drop-offs and other hazards.
- Furnish, erect, and maintain traffic control devices and facilities conforming to 643.
- Furnish, erect, and maintain temporary pedestrian devices and facilities conforming to 644.

104.6.1.2.2 Flagging

Replace paragraph three with the following effective with the December 2019 letting:

(3) Provide associated advanced warning signs that meet the retroreflective requirements of 637.2.2.2. Provide temporary portable rumble strips from the department's APL installed according to manufacturer's instructions and as specified in the flagging plan details. Provide guidance service through the worksite using pilot vehicles if required.

Replace paragraph five with the following effective with the December 2019 letting:

(5) Flagging is incidental to the contract and includes costs for advance signing, temporary portable rumble strips, and pilot vehicle guidance service.

104.8 Rights in the Use of Materials Found on the Project

Replace paragraph two with the following effective with the December 2019 letting:

(2) Do not excavate or remove material from within the right-of-way that is not within the vertical and horizontal excavation limits the plans show except as follows:

- If the contract does not identify potential source areas, obtain written authorization from the engineer to use those sources. Complete required environmental documentation and obtain necessary permits. The department will reduce pay by $1.50 per cubic yard under the Material from Right-of-Way administrative item for material obtained from those areas.
- If the contract identifies potential source areas that were evaluated and permitted in the original environmental document, do not begin excavating in those areas until the engineer allows in writing. Additional environmental documentation and environmental permits are not required. The department will not reduce pay for material obtained from those areas.

The department may suspend use of these sources if the contractor's operation affects the essential functions or characteristics of the project.

104.10.1 General

Replace paragraph one with the following effective with the December 2019 letting:

(1) Subsection 104.10 specifies a 2-step process for contractors to follow in submitting a cost reduction incentive (CRI) for modifying the contract in order to reduce direct construction costs computed at contract bid prices. The initial submittal is referred to as a CRI concept and the second submittal is a CRI proposal. The contractor and the department will equally share all savings generated to the contract due to a CRI as specified in 104.10.4.2(1). The department encourages the contractor to submit CRI concepts for the following situations:

1. The contractor generates the original cost savings idea and formulates it into a concept.

2. The department generates the original cost savings idea and obtains the contractor's assistance to formulate the idea into a concept.

Replace paragraph five with the following effective with the December 2019 letting:

(5) The department will consider a CRI that changes but does not impair the essential functions or characteristics of the project. These functions or characteristics include, but are not limited to, appearance, service life, economy of operations, ease of maintenance, design, and safety of structures and pavements, construction phasing or procedures, or other contract requirements. The department will not consider a CRI that changes the following:

- Permanent pavement type.
- Permanent structural cross section above the subgrade.

104.10.2 Submittal and Review of a CRI Concept

Replace paragraphs five and six with the following effective with the December 2019 letting:

(5) The department may consider a CRI concept that addresses a potential change under 104.2.

(6) The department will not implement a contractor-initiated CRI concept, or portion of that concept, without sharing the cost savings with the contractor as specified in 104.10.4.2.

(7) The savings generated by the CRI must be sufficient to warrant its review and processing and offset the level of risk. The department will assess the risk of the CRI relative to departmental design policies and criteria for the project. The department may reject a CRI concept for the following reasons:

1. It requires excessive time or costs for the contractor to develop the CRI proposal.
2. It requires excessive time or costs for review, evaluation, investigation, or implementation.
3. It introduces an inappropriate level of risk.

104.10.4.2 Payment for the CRI Work

Replace paragraph one with the following effective with the December 2019 letting:

(1) The department will pay for completed CRI work as specified for progress payments under 109.6. The department will pay for CRI's under the Cost Reduction Incentive administrative item. When all CRI costs are determined, the department will execute a contract change order that does the following:

1. Adjusts the contract time, interim completion dates, or both.
2. Pays the contractor for the unpaid balance of the CRI work.
3. Pays the contractor 50 percent of the net savings resulting from the CRI, calculated as follows:

$$NS = CW - CRW - CC - DC$$

Where:

NS = Net Savings

CW = The cost of the work required by the original contract that is revised by the CRI. CW is computed at contract bid prices if applicable.

CRW = The cost of the revised work, computed at contract bid prices if applicable.

CC = The contractor's cost of developing the CRI proposal.

DC = The department's cost for investigating, evaluating, and implementing the CRI proposal.

105.13 Claims Process for Unresolved Changes

Replace the entire text with the following effective with the December 2019 letting:

105.13.1 General

(1) Before submitting a claim, the department and contractor can mutually agree to have the department get a third-party advisory opinion as specified in 104.3.6.

(2) The department and contractor can mutually agree to extend any time frame specified throughout 105.13 and can mutually agree to utilize an alternative dispute resolution method at any point before the department renders its final decision.

(3) The department and contractor share costs related to referral to a dispute review board (DRB) as prescribed in the department's dispute resolution procedures.

105.13.2 Notice of Claim

(1) If the contractor has followed the procedures for revising the contract specified in 104.2 and provided the notification specified in 104.3, but still disagrees with the region, the contractor may pursue the issue as a claim. File a notice of claim with the project engineer concerning the disagreement within 14 calendar days of receiving the region's decision under 104.3.6(1).

(2) The project engineer may deny the applicable portion of a claim if the contractor does not do the following:

1. File the notice of claim within 14 calendar days as specified in 105.13.2(1).
2. Give the project engineer sufficient access to keep a record of the actual labor, materials, and equipment used to perform the claimed work.

(3) Upon filing the notice of claim, maintain records as specified for force account statements in 109.4.5. Unless the project engineer issues a suspension, continue to perform the disputed work. The department will continue to make progress payments to the contractor as specified in 109.6.

105.13.3 Submission of Claim

(1) Submit the claim to the project engineer as promptly as possible following the submission of the Notice of Claim, but not later than the end of the time allowed under 109.7 for the contractor to respond in writing to the engineer-issued semi-final estimate. If the contractor does not submit the claim within that response time, the department will deny the claim.

(2) The department will not accept the submission of a claim until the resolution process in 104.3 has been completed and the contractor makes no further requests to submit updated information that may affect the region’s final decision.

105.13.4 Content of Claim

(1) The final contractor written statement under 104.3.3 is considered the content of the claim. If the contractor makes a request to submit updated information that may affect the region’s final decision under 104.3.6, submit the updated information as an amendment to the contractor written statement and continue the resolution process in 104.3 before submitting a claim.

(2) The department may refer the claimant of a false claim to the appropriate authority for criminal prosecution. Certify the claim using the following form:

The undersigned is duly authorized to certify this claim on behalf of (the contractor).

(The contractor) certifies that this claim is made in good faith, that the supporting data are accurate and complete to the best of (the contractor's) knowledge and belief, and that the amount requested accurately reflects the contract adjustment for which (the contractor) believes that the department is liable.

(THE CONTRACTOR)

By:_____
(Name and Title)

Date of Execution:_____

105.13.5 Department Final Decision

(1) The department will have up to 28 calendar days, from the contractor's submission of the claim, to perform a final review of 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 the contractor or region may request a meeting to present their views. Before the meeting, both parties will agree upon written ground rules for the meeting.

(2) Upon completion of the 28 calendar days for the department’s review and meetings, the department will have up to 21 calendar days to render a written decision. The department will consider written and oral submissions from the contractor and region, and may consider other relevant information in the project records.

(3) The department will provide the following in its final decision:

1. A concise description of the claim.
2. A clear, contractual basis for its decision that includes a reference to 104.2 on revisions to the contract and as appropriate, specific reference to language regarding the bid items in question.
3. Other facts the department relies on to support its decision.

4. 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.
5. The amount of money or other relief, if any, the department will grant the contractor.

(4) If the contractor disagrees with the department's final decision, the contractor may initiate a legal action pursuant to state statutes.

106.3.4.2.2.2 Freeze-Thaw Soundness

Replace paragraph one with the following effective with the December 2019 letting:

(1) Perform freeze-thaw soundness testing according to AASHTO T103 as modified in CMM 8-60.2. Provide freeze/thaw soundness test results based on the fraction retained on the No. 4 sieve as follows:

1. Using virgin crushed stone aggregates produced from limestone/dolomite sources in one or more of the following counties or from out of state:

Brown	Columbia	Crawford	Dane	Dodge
Fond du Lac	Grant	Green	Green Lake	Iowa
Jefferson	Lafayette	Marinette	Oconto	Outagamie
Rock	Shawano	Walworth	Winnebago	

2. Using gravel aggregates produced from pit sources in one or more of the following counties or from out of state:

Dodge	Washington	Waukesha

108.10.3 Excusable Compensable Delays

Replace paragraph two with the following effective with the June 2020 letting:

(2) The following are compensable delays:

1. A contract change for revised work as specified for extra work under 104.2.2.1, for a differing site condition under 104.2.2.2, or for significant changes in the character of the work under 104.2.2.4.
2. A contract change for an engineer-ordered suspension under 104.2.2.3.
3. The unexpected discovery of human remains, an archaeological find, or historical find consistent with 107.25.
4. The unexpected discovery of a hazardous substance consistent with 107.24.
5. The non-completion of work that utilities or other third parties perform, if the contract specifies a number of days or a completion date for that utility or third-party work. For delays covered under Trans 220 of the Wisconsin administrative code, the engineer will grant a time extension, but the contractor must seek recovery of delay costs from the utility.

208.5 Payment

Replace paragraph three with the following effective with the December 2019 letting:

(3) The department will adjust pay for material obtained from within the project right-of-way limits but outside project excavation limits, furnished under 208.2.2, as specified in 104.8.

301.2.3 Sampling and Testing

Replace paragraph one with the following effective with the December 2019 letting:

(1) Department and contractor testing shall conform to the following:

Sampling[1]	AASHTO T2
Percent passing the 200 sieve	AASHTO T11
Gradation[1]	AASHTO T27
Gradation of extracted aggregate	AASHTO T30
Moisture content[1]	AASHTO T255
Liquid limit	AASHTO T89
Plasticity index	AASHTO T90
Wear	AASHTO T96

Sodium sulfate soundness (R-4, 5 cycles)..... AASHTO T104
Freeze/thaw soundness[1]..... AASHTO T103
Lightweight Pieces in Aggregate ..... AASHTO T113
Fracture ..... ASTM D5821 as modified in CMM 8-60
Moisture/density[1]..... AASHTO T99 and AASHTO T180
In-place density[1]..... AASHTO T191
Asphaltic material extraction..... CMM 8-36 WisDOT Test Method 1560

[1] As modified in CMM 8-60.

301.2.4.5 Aggregate Base Physical Properties

Replace paragraph one with the following effective with the December 2019 letting:

(1) Furnish aggregates conforming to the following:

TABLE 301-2 AGGREGATE BASE PHYSICAL PROPERTIES

PROPERTY	CRUSHED STONE	CRUSHED GRAVEL	CRUSHED CONCRETE	RECLAIMED ASPHALT	REPROCESSED MATERIAL	BLENDED MATERIAL
Gradation AASHTO T27						
dense	305.2.2.1	305.2.2.1	305.2.2.1	305.2.2.2	305.2.2.1	305.2.2.1[1]
open-graded	310.2	310.2	not allowed	not allowed	not allowed	not allowed
Wear AASHTO T96 loss by weight	<=50%	<=50%	note[2]	___	note[2]	note[3]
Sodium sulfate soundness AASHTO T104 loss by weight						
dense	<=18%	<=18%	___	___	___	note[3]
open-graded	<=12%	<=12%	not allowed	not allowed	not allowed	not allowed
Freeze/thaw soundness AASHTO T103[6] loss by weight						
dense	<=18%	<=18%	note[2]	___	___	note[3]
open-graded	<=18%	<=18%	not allowed	not allowed	not allowed	not allowed
Liquid limit AASHTO T89	<=25	<=25	<=25	___	___	note[3]
Plasticity AASHTO T90	<=6[4]	<=6[4]	<=6[4]	___	___	note[3]
Fracture ASTM D5821[6] min one face by count						
dense	58%	58%	58%	___	note[5]	note[3]
open-graded	90%	90%	not allowed	not allowed	not allowed	not allowed

[1] The final aggregate blend must conform to the specified gradation.

[2] No requirement for material taken from within the project limits. For material supplied from a source outside the project limits:

- LA wear maximum of 50 percent loss, by weight.
- Freeze thaw maximum of 42 percent loss, by weight.

[3] Required as specified for the individual component materials defined in columns 2 - 6 of the table before blending.

[4] For base placed between old and new pavements, use crushed stone, crushed gravel, or crushed concrete with a plasticity index of 3 or less.

[5] >=75 percent by count of non-asphalt coated particles.

[6] as modified in CMM 8-60.

450.2.2 Aggregate Sampling and Testing

Replace paragraph one with the following effective with the December 2019 letting:

(1) The department and the contractor will sample and test according to the following methods, except as revised with the engineer's approval:

Sampling aggregates	AASHTO T2
Material finer than No. 200 sieve	AASHTO T11
Sieve analysis of aggregates	AASHTO T27
Mechanical analysis of extracted aggregate	AASHTO T30
Sieve analysis of mineral filler	AASHTO T37
Los Angeles abrasion of coarse aggregate	AASHTO T96
Freeze-thaw soundness of coarse aggregate[1]	AASHTO T103
Sodium sulfate soundness of aggregates (R-4, 5 cycles)	AASHTO T104
Extraction of bitumen	AASHTO T164

[1] As modified in CMM 8-60.2.

450.3.2.6.3 Compaction Roller Pattern Determined by Growth Curve

Add 450.3.2.6.3 as a new subsection effective with the December 2019 letting:

450.3.2.6.3 Compaction Roller Pattern Determined by Growth Curve

(1) When specified in 460.3.3.1, compact asphaltic mixture using the roller pattern established during construction of a control strip. Use 2 or more rollers per paver if placing more than 165 tons per hour.

(2) On the first day of production, construct a control strip under the direct observation of department personnel. After compacting the control strip with a minimum of 3 passes, mark the gauge outline and take a one-minute wet density measurement using a nuclear density gauge in back scatter mode at a single location. Take a density measurement at the same location after each subsequent pass. Continue compacting and testing until the increase in density is less than 1 pcf for 3 consecutive passes. Submit the final roller pattern to the engineer in writing. Once the roller pattern is established do not change the pattern or decrease the number, type, or weight of rollers without the engineer's written approval.

(3) After establishing the roller pattern, and under the direct observation of the engineer, cut at least one 4-inch diameter or larger core from the control strip density gauge outline. Prepare cores and determine density according to AASHTO T166. Dry cores after testing. Fill core holes and obtain engineer approval before opening to traffic. The department will maintain custody of cores throughout the entire sampling and testing process. The department will label cores, transport cores to testing facilities, witness testing, store dried cores, and provide subsequent verification testing.

450.3.2.8 Jointing

Replace paragraph three with the following effective with the December 2019 letting:

(3) Construct notched wedge longitudinal joints for mainline paving of HMA layers 1.75 inches or greater. Extend the wedge beyond the normal lane width as the plans show or as the engineer directs.

Replace paragraph five with the following effective with the December 2019 letting:

(5) Construct the wedge for each layer using an engineer-approved strike-off device that will provide a uniform slope and will not restrict the main screed. Shape and compact the wedge with a weighted steel side roller wheel or vibratory plate compactor the same width as the wedge. Apply a tack coat to the wedge surface and both notches before placing the adjacent lane.

(6) Clean longitudinal and transverse joints coated with dust and, if necessary, paint with hot asphaltic material, a cutback, or emulsified asphalt to ensure a tightly bonded, sealed joint.

455.2.5 Tack Coat

Replace paragraph one with the following effective with the December 2019 letting:

(1) Under the Tack Coat bid item, furnish type SS-1h, CSS-1h, QS-1h, CQS-1h, or modified emulsified asphalt with an "h" suffix, unless the contract specifies otherwise.

460.2.2.3 Aggregate Gradation Master Range

Replace paragraph one with the following effective with the December 2019 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	PERCENT PASSING DESIGNATED SIEVES							
	NOMINAL SIZE							
	No. 1 (37.5 mm)	No. 2 (25.0 mm)	No.3 (19.0 mm)	No. 4 (12.5 mm)	No. 5 (9.5 mm)	No. 6 (4.75 mm)	SMA No. 4 (12.5 mm)	SMA No. 5 (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	100	58 - 80	90 - 100
4.75-mm	___	___	___	___	90 max	90 - 100	25 - 35	35 - 45
2.36-mm	15 - 41	19 - 45	23 - 49	28 - 58	32 - 67	90 max	15 - 25	18 - 28
1.18-mm	___	___	___	___	___	30 - 55	___	___
0.60-mm	___	___	___	___	___	___	18 max	18 max
0.075-mm	0 - 6.0	1.0 - 7.0	2.0 - 8.0	2.0 - 10.0	2.0 - 10.0	6.0 - 13.0	8.0 - 11.0	8.0 - 12.0
% VMA	11.0 min	12.0 min	13.0 min	14.0 min[1]	15.0 min[2]	16.0 - 17.5	16.0 min	17.0 min

[1] 14.5 for LT and MT mixes.

[2] 15.5 for LT and MT mixes.

460.2.7 HMA Mixture Design

Replace paragraph one with the following effective with the December 2019 letting:

(1) For each HMA mixture type used under the contract, develop and submit an asphaltic mixture design according to CMM 8-66 and conforming to the requirements of table 460-1 and table 460-2. Ensure that SMA mixture designs adhere to AASHTO R 46 and AASHTO M 325 in addition to the required test procedures outlined in CMM 8-66 table 1 and CMM 8-66 table 2. Determine the specific gravity of fines or super fines used as a mineral filler or additional stabilizer in SMA designs according to AASHTO T 100. The values listed are design limits; production values may exceed those limits. The department will review mixture designs and report the results of that review to the designer according to CMM 8-66.

TABLE 460-2 MIXTURE REQUIREMENTS

Mixture type	LT	MT	HT	SMA
LA Wear (AASHTO T96)				
100 revolutions(max % loss)	13	13	13	13
500 revolutions(max % loss)	50	45	45	35
Soundness (AASHTO T104) (sodium sulfate, max % loss)	12	12	12	12
Freeze/Thaw (AASHTO T103 as modified in CMM 8-60.2) (specified counties, max % loss)	18	18	18	18
Fractured Faces (ASTM D5821 as modified in CMM 860) (one face/2 face, % by count)	65/___	75 / 60	98 / 90	100/90
Flat & Elongated (ASTM D4791) (max %, by weight)	5 (5:1 ratio)	5 (5:1 ratio)	5 (5:1 ratio)	20 (3:1 ratio)
Fine Aggregate Angularity (AASHTO T304, method A, min)	40[1]	43[1]	45	45
Sand Equivalency (AASHTO T176, min)	40	40[2]	45	50
Clay Lumps and Friable Particle in Aggregate (AASHTO T112)	<= 1%	<= 1%	<= 1%	<= 1%
Plasticity Index of Material Added to Mix Design as Mineral Filler (AASHTO T89/90)	<= 4	<= 4	<= 4	<= 4
Gyratory Compaction				
Gyrations for Nini	6	7	8	7
Gyrations for Ndes	40	75	100	65
Gyrations for Nmax	60	115	160	100
Air Voids, %Va (%Gmm Ndes)	4.0 (96.0)	4.0 (96.0)	4.0 (96.0)	4.5 (95.5)
% Gmm Nini	<= 91.5[3]	<= 89.0[3]	<= 89.0	___
% Gmm Nmax	<= 98.0	<= 98.0	<= 98.0	<= 98.0
Dust to Binder Ratio[4] (% passing 0.075/Pbe)	0.6 - 1.2[5]	0.6 - 1.2[5]	0.6 - 1.2[5]	1.2 - 2.0
Voids filled with Binder (VFB or VFA, %)	68 - 80[6] [8]	65 - 75[6] [7] [9]	65 - 75[6] [7] [9]	70 - 80
Tensile Strength Ratio (TSR) (AASHTO T283)[10] [11]				
no antistripping additive	0.75 min	0.75 min	0.75 min	0.80 min
with antistripping additive	0.80 min	0.80 min	0.80 min	0.80 min
Draindown (AASHTO T305) (%)	___	___	___	<= 0.30
Minimum Effective Asphalt Content, Pbe (%)	___	___	___	5.5

[1] For No 6 (4.75 mm) nominal maximum size mixes, the specified fine aggregate angularity is 43 for LT and 45 MT mixes.

[2] For No 6 (4.75 mm) nominal maximum size mixes, the specified sand equivalency is 43 for MT mixes.

[3] The percent maximum density at initial compaction is only a guideline.

[4] For a gradation that passes below the boundaries of the caution zone (ref. AASHTO M323), the dust to binder ratio limits are 0.6 - 1.6.

[5] For No 6 (4.75 mm) nominal maximum size mixes, the specified dust to binder ratio limits are 1.0 - 2.0 for LT mixes and 1.5 - 2.0 for MT and HT mixes.

[6] For No. 6 (4.75mm) nominal maximum size mixes, the specified VFB is 67 - 79 percent for LT mixes and 66 - 77 percent for MT and HT mixes.

[7] For No. 5 (9.5mm) and No. 4 (12.5 mm) nominal maximum size mixtures, the specified VFB range is 70 - 76 percent.

[8] For No. 2 (25.0mm) nominal maximum size mixes, the specified VFB lower limit is 67 percent.

[9] For No. 1 (37.5mm) nominal maximum size mixes, the specified VFB lower limit is 67 percent.

[10] WisDOT eliminates freeze-thaw conditioning cycles from the TSR test procedure.

[11] Run TSR at asphalt content corresponding to 3.0% air void regressed design, or 4.5% air void design for SMA, using distilled water for testing.

460.2.8.2.1.3.1 Contracts with 5000 Tons of Mixture or Greater

Replace paragraph four with the following effective with the December 2019 letting:

(4) Use the test methods identified below, or other methods the engineer approves, to perform the following tests at the frequency indicated:

Blended aggregate gradations:

Drum plants:

- Field extraction by ignition oven according to AASHTO T308 as modified in CMM 8-36.6.3.6, chemical extraction according to AASHTO T-164 method A or B; or automated extraction according to ASTM D8159 as modified in CMM 8-36.6.3.1. Gradation of resulting aggregate sample determined according to AASHTO T30.
- Belt samples, optional for virgin mixtures, obtained from stopped belt or from the belt discharge using an engineer-approved sampling device and performed according to AASHTO T11 and T27.

Batch plants:

- Field extraction by ignition oven according to AASHTO T308 as modified in CMM 8-36.6.3.6, chemical extraction according to AASHTO T-164 method A or B; or automated extraction according to ASTM D8159 as modified in CMM 8-36.6.3.1. Gradation of resulting aggregate sample determined according to AASHTO T30.

Asphalt content (AC) in percent:

AC by ignition oven according to AASHTO T308 (CMM 8-36.6.3.6), by chemical extraction according to AASHTO T-164 method A or B; or by automated extraction according to ASTM D8159 as modified in CMM 8-36.6.3.1. Gradation of resulting aggregate sample determined according to AASHTO T30.

Bulk specific gravity of the compacted mixture according to AASHTO T166.

Maximum specific gravity according to AASHTO T209.

Air voids (Va) by calculation according to AASHTO T269.

VMA by calculation according to AASHTO R35.

460.2.8.2.1.4.2 Control Charts

Replace paragraph one with the following effective with the December 2019 letting:

(1) Maintain standardized control charts at the laboratory. Record contractor test results on the charts the same day as testing. Record data on the standardized control charts as follows:

- Blended aggregate gradation tests in percent passing. Of the following, plot sieves required in table 460-1: 37.5-mm, 25.0-mm, 19.0-mm, 12.5-mm, 9.5-mm, 4.75-mm, 2.36-mm, 1.18-mm, 0.60-mm, and 0.075-mm.
- Asphalt material content in percent.
- Air voids in percent.
- VMA in percent.

(2) Plot both the individual test point and the running average of the last 4 data points on each chart. Show QC data in black with the running average in red. Draw the warning limits with a dashed green line and the JMF limits with a dashed red line. The contractor may use computer generated black-and-white printouts with a legend that clearly identifies the specified color-coded components.

460.2.8.2.1.5 Control Limits

Replace paragraph one with the following effective with the December 2019 letting:

(1) Conform to the following control limits for the JMF and warning limits based on a running average of the last 4 data points:

ITEM	JMF LIMITS	WARNING LIMITS
Percent passing given sieve:		
37.5-mm	+/- 6.0	+/- 4.5
25.0-mm	+/- 6.0	+/- 4.5
19.0-mm	+/- 5.5	+/- 4.0
12.5-mm	+/- 5.5	+/- 4.0
9.5-mm	+/- 5.5	+/- 4.0
4.75-mm	+/- 5.0	+/- 4.0
2.36-mm	+/- 5.0	+/- 4.0
1.18-mm	+/- 4.0	+/- 3.0
0.60-mm	+/- 4.0	+/- 3.0
0.075-mm	+/- 2.0	+/- 1.5
Asphaltic content in percent	- 0.3	- 0.2
Air voids in percent[1]	+1.3/-1.0	+1.0/-0.7
VMA in percent[2]	- 0.5	- 0.2

[1] For SMA, JMF limits are +/-1.3 and warning limits are +/-1.0.

[2] VMA limits are based on requirements for each mix design nominal maximum aggregate size in table 460-1. For No. 6 (4.75mm) mixes, JMF limits are +/- 0.5 and warning limits are +/- 0.2.

460.3.2 Thickness

Replace paragraph one with the following effective with the December 2019 letting:

(1) Provide the plan thickness for lower and upper layers limited as follows:

NOMINAL SIZE	MINIMUM LAYER THICKNESS (in inches)	MAX LOWER LAYER THICKNESS (in inches)	MAX UPPER LAYER THICKNESS (in inches)	MAX SINGLE LAYER THICKNESS[3] (in inches)
No. 1 (37.5 mm)	4.5	6	4.5	6
No. 2 (25.0 mm)	3.0	5	4	6
No. 3 (19.0 mm	2.25	4	3	5
No. 4 (12.5 mm)[1]	1.75	3[2]	2.5	4
No. 5 (9.5 mm)[1]	1.25	3[2]	2	3
No. 6 (4.75 mm)	0.75	1.25	1.25	1.25

[1] SMA mixtures use nominal size No. 4 (12.5 mm) or No. 5 (9.5 mm).

[2] SMA mixtures with nominal sizes of No. 4 (12.5 mm) and No. 5 (9.5 mm) have no maximum lower layer thickness specified.

[3] For use on cross-overs and shoulders.

(2) Place leveling layers using No. 4 (12.5 mm), No. 5 (9.5 mm), or No. 6 (4.75 mm) mixtures. Leveling layers may be thinner than the minimum lower layer thickness for the mixture used.

(3) Place wedging layers as the contract specifies or engineer directs. Wedging layers have no specified minimum or maximum thickness.

460.3.3.1 Minimum Required Density

Replace paragraph one with the following effective with the December 2019 letting:

(1) Compact No. 6 mixtures in lower layers as specified in 450.3.2.6.2 and in upper layers as specified in 450.3.2.6.3. For other HMA mixtures, compact all layers to the density table 460-3 specifies.

TABLE 460-3 MINIMUM REQUIRED DENSITY[1]

LOCATION	LAYER	PERCENT OF TARGET MAXIMUM DENSITY		
		MIXTURE TYPE		
		LT and MT	HT	SMA[5]
TRAFFIC LANES[2]	LOWER	93.0[3]	93.0[4]	___
	UPPER	93.0	93.0	93.0
SHOULDERS & APPURTENANCES	LOWER	91.0	91.0	___
	UPPER	92.0	92.0	92.0

[1] The table values are for average lot density. If any individual density test result falls more than 3.0 percent below the minimum required target maximum density, the engineer will investigate the acceptability of that material according to CMM 8-15.11.

[2] Includes side roads, crossovers, turn lanes, ramps, parking lanes, bike lanes, and park-and-ride lots as defined by the contract plans.

[3] Minimum reduced by 2.0 percent for a lower layer constructed directly on crushed aggregate or recycled base courses.

[4] Minimum reduced by 1.0 percent for a lower layer constructed directly on crushed aggregate or recycled base courses.

460.3.3.2 Pavement Density Determination

Replace paragraph three with the following effective with the December 2019 letting:

(3) A lot is defined in CMM 8-15 and placed within a single layer for each location and target maximum density category indicated in table 460-3. The lot density is the average of all samples taken for that lot. The department determines the number of tests per lot according to CMM 8-15.

460.5.2.1 General

Replace paragraph six with the following effective with the December 2019 letting:

(6) If during a QV dispute resolution investigation the department discovers unacceptable mixture defined by one or more of the following:

- Va less than 2.5 or greater than 6.5 percent for SMA, or for other mixes, less than 1.5 or greater than 5.0 percent.
- VMA more than 1.0 percent below the minimum or above the maximum specified in table 460-1.
- AC more than 0.5 % below the JMF target.

Remove and replace the material, or if the engineer allows the mixture to remain in place, the department will pay for the quantity of affected material at 50 percent of the contract price.

501.2.5.5 Sampling and Testing

Replace paragraph one with the following effective with the December 2019 letting:

(1) Sample and test aggregates for concrete according to the following:

Sampling aggregates[1]	AASHTO T2
Lightweight pieces in aggregate	AASHTO T113
Material finer than No. 200 sieve[1]	AASHTO T11
Unit weight of aggregate	AASHTO T19
Organic impurities in sands	AASHTO T21
Sieve analysis of aggregates	AASHTO T27
Effect of organic impurities in fine aggregate	AASHTO T71
Los Angeles abrasion of coarse aggregate	AASHTO T96
Alkali Silica Reactivity of Aggregates	ASTM C1260
Alkali Silica Reactivity of Combinations of Cementitious Materials and Aggregates	ASTM C1567
Freeze-thaw soundness of coarse aggregate[1]	AASHTO T103
Sodium sulfate soundness of coarse aggregates (R-4, 5 cycles)	AASHTO T104
Specific gravity and absorption of fine aggregate	AASHTO T84
Specific gravity and absorption of coarse aggregate[1]	AASHTO T85
Flat & elongated pieces based on a 3:1 ratio[1]	ASTM D4791
Sampling fresh concrete	AASHTO R60
Making and curing concrete compressive strength test specimens	AASHTO T23
Compressive strength of molded concrete cylinders	AASHTO T22

[1] As modified in CMM 8-60.

505.2.2 Bar Steel Reinforcement

Replace paragraph one with the following effective with the December 2019 letting:

(1) Conform to AASHTO M31, type S or type W.

505.2.3 High-Strength Bar Steel Reinforcement

Replace paragraph one with the following effective with the December 2019 letting:

(1) Conform to AASHTO M31, grade 60, type S or type W.

505.2.4.1 General

Replace paragraph one with the following effective with the December 2019 letting:

(1) Conform to AASHTO M31, grade 60, type S or type W. Ensure that the coating is applied in a CRSI certified epoxy coating plant. Bend bars that require bending before coating, unless the fabricator can bend the bar without damaging the coating.

505.2.6.1 General

Replace paragraph one with the following effective with the December 2019 letting:

(1) For dowel bars and straight tie bars, there is no requirement for bend tests. Ensure that the bars are the specified diameter and length the plans show.

505.2.6.2.2 Solid Dowel Bars

Replace paragraph one with the following effective with the December 2019 letting:

(1) Furnish coated bars conforming to AASHTO M31 grade 40 or 60. Alternatively the contractor may furnish dowel bars conforming to AASHTO M227 grade 70-80. Coat in a plant certified by the Concrete Reinforcing Steel Institute with a thermosetting epoxy conforming to AASHTO M254, type B.

520.3.7 Deflection Testing

Replace paragraphs three and four with the following effective with the June 2020 letting:

(3) Test 100 percent of the installed length of pipe 24 inches or greater in diameter. Ensure that the mandrel passes through the entire section in one pass when pulled by hand without using excessive force. If the designated length of pipe fails, the engineer may require additional testing.

(4) For pipe less than 24 inches in diameter, the engineer will designate at least 10 percent of the installed length of pipe for testing. The mandrel must pass through the entire section in one pass when pulled by hand without using excessive force. If the designated length of pipe fails, engineer may require additional testing.

(5) Relay or replace pipe that does not pass deflection testing. Retest all relayed or replaced pipe.

608.3.7 Deflection Testing

Replace paragraphs three and four with the following effective with the June 2020 letting:

(3) Test 100 percent of the installed length of pipe 24 inches or greater in diameter. Ensure that the mandrel passes through the entire section in one pass when pulled by hand without using excessive force. If the designated length of pipe fails, the engineer may require additional testing.

(4) For pipe less than 24 inches in diameter, the engineer will designate at least 10 percent of the installed length of pipe for testing. The mandrel must pass through the entire section in one pass when pulled by hand without using excessive force. If the designated length of pipe fails, engineer may require additional testing.

(5) Relay or replace pipe that does not pass deflection testing. Retest all relayed or replaced pipe.

625.3.2 Processing Topsoil or Salvaged Topsoil

Delete paragraph four effective with the December 2019 letting.

701.3.1 General

Replace the entire text with the following effective with the December 2019 letting:

(1) Perform contract required QC tests for samples randomly located according to CMM 8-30. Use the test methods specified in table 701-1.

TABLE 701-1 TESTING AND CERTIFICATION STANDARDS

TEST	TEST STANDARD	MINIMUM REQUIRED CERTIFICATION (any one of the certifications listed for each test)
Random Sampling	CMM 8-30.9.2	Transportation Materials Sampling Technician (TMS) Aggregate Technician I (AGGTEC-I) AGGTEC-I Assistant Certified Technician (ACT-AGG) PCC Technician I (PCCTEC-I) PCCTEC-I Assistant Certified Technician (ACT-PCC) Grading Technician I (GRADINGTEC-I) Grading Assistant Certified Technician (ACT-GRADING)
Sampling Aggregates	AASHTO T2[1][4]	TMS, AGGTECT-1, ACT-AGG
Percent passing the No. 200 sieve	AASHTO T11[1]	AGGTEC-I, ACT-AGG
Fine and coarse aggregate gradation	AASHTO T27[1]	
Aggregate moisture content	AASHTO T255[1]	
Fractured faces	ASTM D5821[1]	
Liquid limit	AASHTO T89	Aggregate Testing for Transportation Systems (ATTS) GRADINGTEC-I, or ACT-GRADING
Plasticity index	AASHTO T90[3]	
Sampling freshly mixed concrete	AASHTO R60	PCCTEC-1 ACT-PCC
Air content of fresh concrete	AASHTO T152[2]	
Air void system of fresh concrete	AASHTO TP118[5]	
Concrete slump	AASHTO T119[2]	
Concrete temperature	ASTM C1064	
Making and curing concrete cylinders	AASHTO T23	
Moist curing for concrete cylinders	AASHTO M201	
Concrete compressive strength	AASHTO T22	Concrete Strength Tester (CST) CST Assistant Certified Technician (ACT-CST)
Concrete flexural strength	AASHTO T97	
Profiling	—	PROFILER

[1] As modified in CMM 8-60.

[2] As modified in CMM 8-70.

[3] A plasticity check, if required under individual QMP provisions, may be performed by an AGGTEC-I in addition to the certifications listed for liquid limit and plasticity index tests.

[4] Plant personnel may operate equipment to obtain samples under the direct observation of a TMS or higher.

[5] Consolidate by rodding.

715.2.1 General

Replace paragraph five with the following effective with the December 2019 letting:

(5) For new lab-qualified mixes, test the air void system of the proposed concrete mix. Include the SAM number as a part of the mix design submittal.

715.3.1.1 General

Replace paragraph two with the following effective with the December 2019 letting:

(2) Test the air void system at least once per lot and enter the SAM number in the MRS for information only. SAM testing is not required for the following:

- For lots with less than 4 sublots.
- High early strength (HES) concrete.
- Special high early strength (SHES) concrete.
- Concrete placed under the following bid items:
    - Concrete Pavement Approach Slab
    - Concrete Masonry Culverts
    - Concrete Masonry Retaining Walls
    - Steel Grid Floor Concrete Filled
    - Crash Cushions Permanent
    - Crash Cushions Permanent Low Maintenance
    - Crash Cushions Temporary

730.3.1 General

Replace paragraph three with the following effective with the December 2019 letting:

(3) Stockpile tests[1] can be used for multiple projects. If placement on a project does not begin within 120 calendar days after the date the stockpile sample was obtained, retest the stockpile before placement begins.

[1] Replace the stockpile test with an in-place production test for concrete pavement recycled and processed on-site; test on the first day of production.

730.3.2 Contractor QC Testing

Replace paragraph four with the following effective with the December 2019 letting:

(4) Submit test results to the engineer within one business day of obtaining the sample, except any aggregate classification with recycled asphalt may be submitted within two business days.

730.3.4.1 Contractor QC Testing

Replace the entire text with the following effective with the December 2019 letting:

(1) For small quantity contracts with <= 500 tons, submit 2 production tests or 1 stockpile test. Production tests are valid for 3 years from the date the production sample was obtained. Begin placement within 3 years of the date sampled.

(2) For small quantity contracts with <= 6000 tons and > 500 tons, do the following:

1. Conduct one QC stockpile test before placement.
2. Submit 2 production tests or conduct 1 loadout test instead of placement tests. Production tests are valid for 3 years from the date the production sample was obtained; the first day of placement must be within 3 years of the date sampled.
3. If the actual quantity placed is more than 6000 tons, on the next day of placement perform one additional random QC test for each 3000 tons of overrun, or fraction thereof.

740.3.2 Contractor QC Testing

Replace paragraph three with the following effective with the December 2019 letting:

(3) Field-locate the beginning and ending points for each profile run. Measure the profiles of each standard and partial segment. Define primary segments starting at a project terminus and running contiguously along the mainline to the other project terminus. 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.

Errata

104.6.1.2.3 Drop-Off and Hazard Protection

Correct errata by changing 2 inches or greater to greater than 2 inches.

(1) Eliminate vertical drop-offs greater than 2 inches and edge slopes steeper than 3:1 between adjacent lanes open to traffic.

305.3.3.3 Shoulders Adjacent to Asphaltic Pavement or Surfacing

Correct errata by changing 2-inch or more to greater than 2-inch.

(2) If the roadway remains open to through traffic during construction and a greater than 2-inch drop-off occurs within 3 feet or less from the edge of the traveled way, eliminate the drop-off within 48 hours after completing that days paving. Unless the special provisions specify otherwise, provide aggregate shoulder material compacted to a temporary 3:1 or flatter cross slope from the surface of the pavement edge.

501.3.2.2 Concrete Proportions

Correct errata in footnote [8] by allowing either grade 100 or grade 120 slag in C-S concrete.

[8] For grade C-S concrete, use grade 100 or grade 120 slag.

614.3.6 Thrie Beam Structure Approach Retro Fits

Correct errata by deleting the galvanization reference already required under 614.3.1.

(2) Install posts and drill holes into existing thrie beam conforming to 614.3.2.

628.3.7 Mobilizations for Erosion Control

Correct errata by clarifying that mobilizations for erosion control include proceeding with the work.

(1) Move personnel, equipment, and materials to the project site and promptly proceed with construction of erosion control items at the stages the contract indicates or the engineer directs.

Wisconsin Department of Transportation

Division of Transportation Systems Development
Bureau of Project Development
4822 Madison Yards Way, 4th Floor South
Madison, WI 53705

Telephone: (608) 266-1631
Facsimile (FAX): (608) 266-8459

September 15, 2020

NOTICE TO ALL CONTRACTORS:

Proposal #01:

1060-33-84, WISC 2020 466
Zoo IC, USH 45
Swan Blvd to Burleigh Street
USH 45
Milwaukee County

1060-34-77
Zoo IC, North Avenue
118th Street to 116th Street
Loc Str
Milwaukee County

1100-18-73, WISC 2021 001
Zoo IC, Polymer Overlays
Zoo IC Mainline Bridges
Var Hwy
Milwaukee County

1100-18-76, WISC 2002 467
Zoo I/C Overpasses
Various Locations
Var Hwy
Milwaukee County

Letting of October 13, 2020

This is Addendum No. 02, which provides for the following:

This addendum replaces ASP-6 shown in Addendum No. 01 with the attached ASP-6 that is Effective with the October 2020 Letting. Standard spec102.7.2 was added to ASP-6 adding note 8 and Standard spec 102.7.3 (1) note 12 was deleted.

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

Additional Special Provision 6
ASP 6 - Modifications to the standard specifications

Make the following revisions to the standard specifications:

102.1 Prequalifying Bidders

Replace paragraph two with the following effective with the October 2020 letting:

(2) Furnish a dated prequalification statement on the department's form at least 10 business days before the time set for the letting to close.

102.6 Preparing the Proposal

Replace the entire text with the following effective with the October 2020 letting:

102.6.1 General

(1) Submit completed proposals on the department's bidding proposal described in 102.2. Submit legible information only. Write everything in ink, by typewriter, or by computer-controlled printer. Provide all dollar amounts in dollars and cents, in numerals. Attach all addenda to the submitted proposal.

(2) Properly execute the proposal. Place the required signatures, in ink, in the space provided on the bidding proposal as indicated below:

ENTITY SUBMITTING PROPOSAL	REQUIRED SIGNATURE
Individual	The individual or a duly authorized agent.
Partnership	A partner or a duly authorized agent.
Joint venture	A member or a duly authorized agent of at least one of the joint venture firms.
Corporation	An authorized officer or duly authorized agent of the corporation. Also show the name of the state chartering that corporation and affix the corporate seal.
Limited liability company	A manager, a member, or a duly authorized agent.

(3) Instead of using the schedule of items provided on the department's bidding proposal, the bidder may submit a substitute schedule with the proposal. Use a format for the substitute schedule conforming to the department’s guidelines for approval of a bidder-generated schedule of items. Obtain the department’s written approval before using a substitute schedule.

(4) Provide a unit price for each bid item listed in the schedule of items. Calculate and show, in the bid amount column, the products of the respective unit prices and quantities. For a lump sum bid item, show the same price in the unit price column and in the bid amount column pertaining to that bid item. Show the total bid obtained by adding the values entered in the bid amount column for the listed bid items.

(5) If a unit price or lump sum bid already entered in the proposal needs to be altered, cross out the entered unit price or lump sum bid with ink or typewriter and enter the new price above or below and initial it in ink.

(6) A change that the bidder makes in the proposal is not an alteration if the bidder makes that change as directed in a specific instruction contained in an addendum.

102.6.2 Disadvantaged Business Enterprise (DBE) Commitment

(1) Before the letting is closed, submit the following documentation for proposals with a DBE goal:

1. Commitment to subcontract to DBE on department form DT1506.
2. Attachment A for each subcontractor listed on the DT1506.
3. If the DBE goal is not attained, certificate of good faith efforts on department form DT1202.

(2) Within 24 hours after the letting is closed, email all supplemental documentation for the DT1202 verifying efforts made to attain the DBE goal to DBE_Alert@dot.wi.gov.

102.7.2 Department May Reject

Replace paragraph one with the following effective with the October 2020 letting:

(1) Proposals are irregular and the department may reject them for one or more of the following reasons:

1. The proposal contains unauthorized alterations of format, words, or figures.
2. The schedule of items contains errors, alterations, or omissions in, bid item numbers, quantities, descriptions, or units of measure, that cannot be corrected as specified in 102.7.1.

3. The proposal is not prepared as specified in 102.6.
4. There are unauthorized alterations, additions, conditional or alternate bids, amendments, attachments, or irregularities that may tend to make the proposal incomplete, indefinite, or ambiguous as to its meaning.
5. There are unauthorized erasures or alterations appearing on the designation of the party to whom the department issued the bidding proposal.
6. The award of the bid, together with the value of the bidder's uncompleted contract work, exceeds the bidder's established ratings, as determined in 102.1, at the time set for awarding the work.
7. A single entity, under the same or different names, or affiliated entities submit more than one proposal for the same work. The submitting entity may be an individual, partnership, joint venture, corporation, or limited liability company.
8. Does not submit the DBE forms and required supplemental documentation of the good faith efforts as specified in 102.6.2.

102.7.3 Department Will Reject

Replace paragraph one with the following effective with the October 2020 letting:

(1) Proposals are irregular and the department will reject and will not post them if the bidder:

1. Does not furnish the required proposal guaranty in the proper form and amount as specified in 102.8.
2. Does not submit a unit price for each bid item listed, except for lump sum bid items where the bidder may show the price in the bid amount column for that bid item.
3. Includes conditions or qualifications not provided for in the department-supplied bidding proposal.
4. Submits a bid on a bidding proposal issued to a different bidder without obtaining departmental authorization to do so.
5. Submits a bid that contains unauthorized revisions in the name of the party to whom the bidding proposal was issued.
6. Submits a schedule of items with illegibly printed bid item numbers, descriptions, or unit prices.
7. Submits a schedule of items for the wrong contract.
8. Submits a bidder-generated schedule of items with an incorrect bid item number and incorrect description for a single bid item.
9. Omits a bid item or bid items on a bidder-generated schedule of items.
10. Submits a materially unbalanced bid.
11. Does not sign the proposal.
12. ~~Does not submit the DBE forms and required supplemental documentation of the good faith efforts as specified in 102.6.2.~~

102.12 Public Opening of Proposals

Replace paragraph one with the following effective with the October 2020 letting:

(1) The letting will close at the time and place indicated in the notice to contractors. The department will publicly open and post the total bid for each proposal on the Bid Express web site beginning at noon on the day after the letting is closed except as specified in 102.7.3 and 102.8. If a proposal has no total bid shown, the department will not post the bid. After verification for accuracy under 103.1, the department will post bid totals on the HCCI web site.

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

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103.1 Consideration of Proposals

Replace paragraph one with the following effective with the October 2020 letting:

(1) Following the public opening of the proposals received, the department will compare them based on the summation of the products of the quantities of work listed and the contract unit prices offered. In case of discrepancies, errors, or omissions, the department will make corrections as specified in 102.7.1. In awarding contracts, the department, in addition to considering the amounts stated in the proposals, may consider one or more of the following:

1. The responsibility of the various bidders as determined from a study of the data required under 102.1.
2. The responsiveness of the bid as determined under 102.6.
3. Information from other investigations that the department may make.

104.3 Contractor Notification

Replace the entire text with the following effective with the December 2019 letting:

104.3.1 General

(1) Subsection 104.3 specifies the step-by-step communication process to be followed to expedite the resolution of potential contract revisions identified by the contractor. Both contractor actions and department responses are outlined. The contractor's non-compliance with the requirements of 104.3 may constitute a waiver of entitlement to a pay adjustment under 109.4 or a time extension under 108.10. The department and contractor can mutually agree to extend any time frame specified throughout 104.3.

104.3.2 Contractor Initial Oral Notification

(1) If required by 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, the contractor must promptly provide oral notification to the project engineer. Upon notification, the project engineer will attempt to resolve the identified issue.

104.3.3 Contractor 5-Day Written Statement

(1) If the project engineer has not responded or resolved the identified issue within 5 business days after receipt of initial notification, provide a contractor written statement to the project engineer in the following format:

Part 1 - Executive Summary *(label page 1.1 through page 1.x)*

Include a detailed, factual statement of the request for additional compensation and contract time. Include the date the issue was identified, the date initial notification was given to the project engineer, and the dates and specific locations of work involved.

Part 2 - Contractor's Basis of Entitlement *(label page 2.1 through page 2.x)*

Include references to relevant contract provisions and a narrative summarizing how the contract provisions support the request for a revision to the original contract.

Part 3 - Contractor's Request for Damages *(label page 3.1 through page 3.x)*

When requesting additional compensation, include an itemized list of costs with a narrative supporting the requested amount and explaining how the costs are tied to the requested contract revision.

When requesting additional contract time, include a copy of the schedule that was in effect when the issue occurred and a detailed narrative explaining how the issue impacted controlling items of work. Provide a time impact analysis utilizing base and updated schedules.

If the full extent of either compensation or time is not known at the date of submittal of the contractor 5-Day written statement, provide a brief statement as to why, and include estimated compensation and time.

Part 4 - Supporting Documentation *(label page 4.1 through page 4.x)*

Include copies of the following:

A. Relevant excerpts from specifications, special provisions, plans, change orders, or other contract documents.

B. Communication on the issue, including: letters, e-mails, meeting minutes, etc.

C. Any other documentation to support or clarify the contractor's position, including: daily work records, cost summary sheets, weigh tickets, test results, sketches, etc.

(2) With the submittal of the written statement, the contractor may also request a meeting with the region.

104.3.4 Region One-Day Written Acknowledgment

(1) Within one business day after the contractor provides the 5-day written statement, the project engineer will provide a region one-day written acknowledgment to the contractor. The project engineer will continue to resolve the issue.

104.3.5 Region 5-Day Written Response

(1) Within 5 business days after receiving the contractor 5-day written statement, the project engineer may request specific additional information to allow the project engineer to decide whether item 1 or 2 of 104.3.6(1) applies. The project engineer will state the information needed and date it is to be received for further review. Submit additional information as an amendment to the contractor 5-day written statement.

104.3.6 Region Final Decision

(1) Within 10 business days after receiving the contractor 5-day written statement or additional information requested in 104.3.5(1), whichever comes last, the region will consider all information and provide a region final decision in writing to the contractor with one or more of the following responses:

1. The region will confirm that the contractor is entitled to a contract revision and a contract change order is necessary as specified in 104.2. The project engineer will give direction concerning the potential change.
2. The region will deny that the contractor is entitled to a contract revision. The project engineer will provide a statement as to why the issue is not a change to the contract. At a minimum, the project engineer will respond to the contractor's issues and refer to the contract to show why the issues are not a change from the original contract.

(2) If the contractor does not agree with the region's decision the contractor may pursue the issue as a claim as specified in 105.13. Alternatively, if the contractor and department mutually agree, the department will get a third-party advisory opinion according to the department's dispute resolution procedures.

(3) If a third party reviews the issue, their recommendation is not binding on either party. The region has 10 business days after receipt of the third party's written recommendation to render a decision. If the department fails to respond in writing within those 10 business days or the contractor disagrees with the region's decision, the contractor may pursue the issue as a claim as specified in 105.13.

104.6.1.2.1 General

Replace paragraph one with the following effective with the December 2019 letting:

(1) Conduct construction operations and provide facilities required to maintain the portion of the project open to the public in a condition that safely and adequately accommodates public traffic. Use barricades, signs, flaggers, and temporary barrier as specified in part VI, of the WMUTCD and ensure that the contractor's use of the right-of-way conforms to 107.9. Throughout the life of the contract, and as the engineer directs, conduct construction operations and provide facilities as follows:

- Conduct flagging operations conforming to plan details and the department's flagging handbook.
- Use drums, barricades, and temporary barrier to delineate and shield abrupt drop-offs and other hazards.
- Furnish, erect, and maintain traffic control devices and facilities conforming to 643.
- Furnish, erect, and maintain temporary pedestrian devices and facilities conforming to 644.

104.6.1.2.2 Flagging

Replace paragraph three with the following effective with the December 2019 letting:

(3) Provide associated advanced warning signs that meet the retroreflective requirements of 637.2.2.2. Provide temporary portable rumble strips from the department's APL installed according to manufacturer's instructions and as specified in the flagging plan details. Provide guidance service through the worksite using pilot vehicles if required.

Replace paragraph five with the following effective with the December 2019 letting:

(5) Flagging is incidental to the contract and includes costs for advance signing, temporary portable rumble strips, and pilot vehicle guidance service.

104.8 Rights in the Use of Materials Found on the Project

Replace paragraph two with the following effective with the December 2019 letting:

(2) Do not excavate or remove material from within the right-of-way that is not within the vertical and horizontal excavation limits the plans show except as follows:

- If the contract does not identify potential source areas, obtain written authorization from the engineer to use those sources. Complete required environmental documentation and obtain necessary permits. The department will reduce pay by $1.50 per cubic yard under the Material from Right-of-Way administrative item for material obtained from those areas.
- If the contract identifies potential source areas that were evaluated and permitted in the original environmental document, do not begin excavating in those areas until the engineer allows in writing. Additional environmental documentation and environmental permits are not required. The department will not reduce pay for material obtained from those areas.

The department may suspend use of these sources if the contractor's operation affects the essential functions or characteristics of the project.

104.10.1 General

Replace paragraph one with the following effective with the December 2019 letting:

(1) Subsection 104.10 specifies a 2-step process for contractors to follow in submitting a cost reduction incentive (CRI) for modifying the contract in order to reduce direct construction costs computed at contract bid prices. The initial submittal is referred to as a CRI concept and the second submittal is a CRI proposal. The contractor and the department will equally share all savings generated to the contract due to a CRI as specified in 104.10.4.2(1). The department encourages the contractor to submit CRI concepts for the following situations:

1. The contractor generates the original cost savings idea and formulates it into a concept.
2. The department generates the original cost savings idea and obtains the contractor’s assistance to formulate the idea into a concept.

Replace paragraph five with the following effective with the December 2019 letting:

(5) The department will consider a CRI that changes but does not impair the essential functions or characteristics of the project. These functions or characteristics include, but are not limited to, appearance, service life, economy of operations, ease of maintenance, design, and safety of structures and pavements, construction phasing or procedures, or other contract requirements. The department will not consider a CRI that changes the following:

- Permanent pavement type.
- Permanent structural cross section above the subgrade.

104.10.2 Submittal and Review of a CRI Concept

Replace paragraphs five and six with the following effective with the December 2019 letting:

(5) The department may consider a CRI concept that addresses a potential change under 104.2.

(6) The department will not implement a contractor-initiated CRI concept, or portion of that concept, without sharing the cost savings with the contractor as specified in 104.10.4.2.

(7) The savings generated by the CRI must be sufficient to warrant its review and processing and offset the level of risk. The department will assess the risk of the CRI relative to departmental design policies and criteria for the project. The department may reject a CRI concept for the following reasons:

1. It requires excessive time or costs for the contractor to develop the CRI proposal.
2. It requires excessive time or costs for review, evaluation, investigation, or implementation.
3. It introduces an inappropriate level of risk.

104.10.4.2 Payment for the CRI Work

Replace paragraph one with the following effective with the December 2019 letting:

(1) The department will pay for completed CRI work as specified for progress payments under 109.6. The department will pay for CRI's under the Cost Reduction Incentive administrative item. When all CRI costs are determined, the department will execute a contract change order that does the following:

1. Adjusts the contract time, interim completion dates, or both.
2. Pays the contractor for the unpaid balance of the CRI work.
3. Pays the contractor 50 percent of the net savings resulting from the CRI, calculated as follows:

NS = CW - CRW - CC - DC

Where:

NS = Net Savings

CW = The cost of the work required by the original contract that is revised by the CRI. CW is computed at contract bid prices if applicable.

CRW = The cost of the revised work, computed at contract bid prices if applicable.

CC = The contractor's cost of developing the CRI proposal.

DC = The department's cost for investigating, evaluating, and implementing the CRI proposal.

105.13 Claims Process for Unresolved Changes

Replace the entire text with the following effective with the December 2019 letting:

105.13.1 General

(1) Before submitting a claim, the department and contractor can mutually agree to have the department get a third-party advisory opinion as specified in 104.3.6.

(2) The department and contractor can mutually agree to extend any time frame specified throughout 105.13 and can mutually agree to utilize an alternative dispute resolution method at any point before the department renders its final decision.

(3) The department and contractor share costs related to referral to a dispute review board (DRB) as prescribed in the department's dispute resolution procedures.

105.13.2 Notice of Claim

(1) If the contractor has followed the procedures for revising the contract specified in 104.2 and provided the notification specified in 104.3, but still disagrees with the region, the contractor may pursue the issue as a claim. File a notice of claim with the project engineer concerning the disagreement within 14 calendar days of receiving the region's decision under 104.3.6(1).

(2) The project engineer may deny the applicable portion of a claim if the contractor does not do the following:

1. File the notice of claim within 14 calendar days as specified in 105.13.2(1).
2. Give the project engineer sufficient access to keep a record of the actual labor, materials, and equipment used to perform the claimed work.

(3) Upon filing the notice of claim, maintain records as specified for force account statements in 109.4.5. Unless the project engineer issues a suspension, continue to perform the disputed work. The department will continue to make progress payments to the contractor as specified in 109.6.

105.13.3 Submission of Claim

(1) Submit the claim to the project engineer as promptly as possible following the submission of the Notice of Claim, but not later than the end of the time allowed under 109.7 for the contractor to respond in writing to the engineer-issued semi-final estimate. If the contractor does not submit the claim within that response time, the department will deny the claim.

(2) The department will not accept the submission of a claim until the resolution process in 104.3 has been completed and the contractor makes no further requests to submit updated information that may affect the region's final decision.

105.13.4 Content of Claim

(1) The final contractor written statement under 104.3.3 is considered the content of the claim. If the contractor makes a request to submit updated information that may affect the region's final decision

under 104.3.6, submit the updated information as an amendment to the contractor written statement and continue the resolution process in 104.3 before submitting a claim.

(2) The department may refer the claimant of a false claim to the appropriate authority for criminal prosecution. Certify the claim using the following form:

The undersigned is duly authorized to certify this claim on behalf of (the contractor).

(The contractor) certifies that this claim is made in good faith, that the supporting data are accurate and complete to the best of (the contractor's) knowledge and belief, and that the amount requested accurately reflects the contract adjustment for which (the contractor) believes that the department is liable.

(THE CONTRACTOR)

By:_____
(Name and Title)

Date of Execution:_____

105.13.5 Department Final Decision

(1) The department will have up to 28 calendar days, from the contractor's submission of the claim, to perform a final review of 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 the contractor or region may request a meeting to present their views. Before the meeting, both parties will agree upon written ground rules for the meeting.

(2) Upon completion of the 28 calendar days for the department’s review and meetings, the department will have up to 21 calendar days to render a written decision. The department will consider written and oral submissions from the contractor and region, and may consider other relevant information in the project records.

(3) The department will provide the following in its final decision:

1. A concise description of the claim.
2. A clear, contractual basis for its decision that includes a reference to 104.2 on revisions to the contract and as appropriate, specific reference to language regarding the bid items in question.
3. Other facts the department relies on to support its decision.
4. 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.
5. The amount of money or other relief, if any, the department will grant the contractor.

(4) If the contractor disagrees with the department's final decision, the contractor may initiate a legal action pursuant to state statutes.

106.3.4.2.2.2 Freeze-Thaw Soundness

Replace paragraph one with the following effective with the December 2019 letting:

(1) Perform freeze-thaw soundness testing according to AASHTO T103 as modified in CMM 8-60.2. Provide freeze/thaw soundness test results based on the fraction retained on the No. 4 sieve as follows:

1. Using virgin crushed stone aggregates produced from limestone/dolomite sources in one or more of the following counties or from out of state:

Brown	Columbia	Crawford	Dane	Dodge
Fond du Lac	Grant	Green	Green Lake	Iowa
Jefferson	Lafayette	Marinette	Oconto	Outagamie
Rock	Shawano	Walworth	Winnebago	

2. Using gravel aggregates produced from pit sources in one or more of the following counties or from out of state:

Dodge	Washington	Waukesha

108.10.3 Excusable Compensable Delays

Replace paragraph two with the following effective with the June 2020 letting:

(2) The following are compensable delays:

1. A contract change for revised work as specified for extra work under 104.2.2.1, for a differing site condition under 104.2.2.2, or for significant changes in the character of the work under 104.2.2.4.
2. A contract change for an engineer-ordered suspension under 104.2.2.3.
3. The unexpected discovery of human remains, an archaeological find, or historical find consistent with 107.25.
4. The unexpected discovery of a hazardous substance consistent with 107.24.
5. The non-completion of work that utilities or other third parties perform, if the contract specifies a number of days or a completion date for that utility or third-party work. For delays covered under Trans 220 of the Wisconsin administrative code, the engineer will grant a time extension, but the contractor must seek recovery of delay costs from the utility.

208.5 Payment

Replace paragraph three with the following effective with the December 2019 letting:

(3) The department will adjust pay for material obtained from within the project right-of-way limits but outside project excavation limits, furnished under 208.2.2, as specified in 104.8.

301.2.3 Sampling and Testing

Replace paragraph one with the following effective with the December 2019 letting:

(1) Department and contractor testing shall conform to the following:

Sampling[1]	AASHTO T2
Percent passing the 200 sieve	AASHTO T11
Gradation[1]	AASHTO T27
Gradation of extracted aggregate	AASHTO T30
Moisture content[1]	AASHTO T255
Liquid limit	AASHTO T89
Plasticity index	AASHTO T90
Wear	AASHTO T96
Sodium sulfate soundness (R-4, 5 cycles)	AASHTO T104
Freeze/thaw soundness[1]	AASHTO T103
Lightweight Pieces in Aggregate	AASHTO T113
Fracture	ASTM D5821 as modified in CMM 8-60
Moisture/density[1]	AASHTO T99 and AASHTO T180
In-place density[1]	AASHTO T191
Asphaltic material extraction	CMM 8-36 WisDOT Test Method 1560

[1] As modified in CMM 8-60.

301.2.4.5 Aggregate Base Physical Properties

Replace paragraph one with the following effective with the December 2019 letting:

(1) Furnish aggregates conforming to the following:

TABLE 301-2 AGGREGATE BASE PHYSICAL PROPERTIES

PROPERTY	CRUSHED STONE	CRUSHED GRAVEL	CRUSHED CONCRETE	RECLAIMED ASPHALT	REPROCESSED MATERIAL	BLENDED MATERIAL
Gradation AASHTO T27						
dense	305.2.2.1	305.2.2.1	305.2.2.1	305.2.2.2	305.2.2.1	305.2.2.1[1]
open-graded	310.2	310.2	not allowed	not allowed	not allowed	not allowed
Wear AASHTO T96 loss by weight	<=50%	<=50%	note[2]	___	note[2]	note[3]
Sodium sulfate soundness AASHTO T104 loss by weight						
dense	<=18%	<=18%	___	___	___	note[3]
open-graded	<=12%	<=12%	not allowed	not allowed	not allowed	not allowed
Freeze/thaw soundness AASHTO T103[6] loss by weight						
dense	<=18%	<=18%	note[2]	___	___	note[3]
open-graded	<=18%	<=18%	not allowed	not allowed	not allowed	not allowed
Liquid limit AASHTO T89	<=25	<=25	<=25	___	___	note[3]
Plasticity AASHTO T90	<=6[4]	<=6[4]	<=6[4]	___	___	note[3]
Fracture ASTM D5821[6] min one face by count						
dense	58%	58%	58%	___	note[5]	note[3]
open-graded	90%	90%	not allowed	not allowed	not allowed	not allowed

[1] The final aggregate blend must conform to the specified gradation.

[2] No requirement for material taken from within the project limits. For material supplied from a source outside the project limits:

- LA wear maximum of 50 percent loss, by weight.
- Freeze thaw maximum of 42 percent loss, by weight.

[3] Required as specified for the individual component materials defined in columns 2 - 6 of the table before blending.

[4] For base placed between old and new pavements, use crushed stone, crushed gravel, or crushed concrete with a plasticity index of 3 or less.

[5] >=75 percent by count of non-asphalt coated particles.

[6] as modified in CMM 8-60.

450.2.2 Aggregate Sampling and Testing

Replace paragraph one with the following effective with the December 2019 letting:

(1) The department and the contractor will sample and test according to the following methods, except as revised with the engineer's approval:

Sampling aggregates	AASHTO T2
Material finer than No. 200 sieve	AASHTO T11
Sieve analysis of aggregates	AASHTO T27
Mechanical analysis of extracted aggregate	AASHTO T30
Sieve analysis of mineral filler	AASHTO T37
Los Angeles abrasion of coarse aggregate	AASHTO T96
Freeze-thaw soundness of coarse aggregate[1]	AASHTO T103
Sodium sulfate soundness of aggregates (R-4, 5 cycles)	AASHTO T104
Extraction of bitumen	AASHTO T164

[1] As modified in CMM 8-60.2.

450.3.2.6.3 Compaction Roller Pattern Determined by Growth Curve

Add 450.3.2.6.3 as a new subsection effective with the December 2019 letting:

450.3.2.6.3 Compaction Roller Pattern Determined by Growth Curve

(1) When specified in 460.3.3.1, compact asphaltic mixture using the roller pattern established during construction of a control strip. Use 2 or more rollers per paver if placing more than 165 tons per hour.

(2) On the first day of production, construct a control strip under the direct observation of department personnel. After compacting the control strip with a minimum of 3 passes, mark the gauge outline and take a one-minute wet density measurement using a nuclear density gauge in back scatter mode at a single location. Take a density measurement at the same location after each subsequent pass. Continue compacting and testing until the increase in density is less than 1 pcf for 3 consecutive passes. Submit the final roller pattern to the engineer in writing. Once the roller pattern is established do not change the pattern or decrease the number, type, or weight of rollers without the engineer's written approval.

(3) After establishing the roller pattern, and under the direct observation of the engineer, cut at least one 4-inch diameter or larger core from the control strip density gauge outline. Prepare cores and determine density according to AASHTO T166. Dry cores after testing. Fill core holes and obtain engineer approval before opening to traffic. The department will maintain custody of cores throughout the entire sampling and testing process. The department will label cores, transport cores to testing facilities, witness testing, store dried cores, and provide subsequent verification testing.

450.3.2.8 Jointing

Replace paragraph three with the following effective with the December 2019 letting:

(3) Construct notched wedge longitudinal joints for mainline paving of HMA layers 1.75 inches or greater. Extend the wedge beyond the normal lane width as the plans show or as the engineer directs.

Replace paragraph five with the following effective with the December 2019 letting:

(5) Construct the wedge for each layer using an engineer-approved strike-off device that will provide a uniform slope and will not restrict the main screed. Shape and compact the wedge with a weighted steel side roller wheel or vibratory plate compactor the same width as the wedge. Apply a tack coat to the wedge surface and both notches before placing the adjacent lane.

(6) Clean longitudinal and transverse joints coated with dust and, if necessary, paint with hot asphaltic material, a cutback, or emulsified asphalt to ensure a tightly bonded, sealed joint.

455.2.5 Tack Coat

Replace paragraph one with the following effective with the December 2019 letting:

(1) Under the Tack Coat bid item, furnish type SS-1h, CSS-1h, QS-1h, CQS-1h, or modified emulsified asphalt with an “h” suffix, unless the contract specifies otherwise.

460.2.2.3 Aggregate Gradation Master Range

Replace paragraph one with the following effective with the December 2019 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	PERCENT PASSING DESIGNATED SIEVES							
	NOMINAL SIZE							
	No. 1 (37.5 mm)	No. 2 (25.0 mm)	No.3 (19.0 mm)	No. 4 (12.5 mm)	No. 5 (9.5 mm)	No. 6 (4.75 mm)	SMA No. 4 (12.5 mm)	SMA No. 5 (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	100	58 - 80	90 - 100
4.75-mm	___	___	___	___	90 max	90 - 100	25 - 35	35 - 45
2.36-mm	15 - 41	19 - 45	23 - 49	28 - 58	32 - 67	90 max	15 - 25	18 - 28
1.18-mm	___	___	___	___	___	30 - 55	___	___
0.60-mm	___	___	___	___	___	___	18 max	18 max
0.075-mm	0 - 6.0	1.0 - 7.0	2.0 - 8.0	2.0 - 10.0	2.0 - 10.0	6.0 - 13.0	8.0 - 11.0	8.0 - 12.0
% VMA	11.0 min	12.0 min	13.0 min	14.0 min[1]	15.0 min[2]	16.0 - 17.5	16.0 min	17.0 min

[1] 14.5 for LT and MT mixes.

[2] 15.5 for LT and MT mixes.

460.2.7 HMA Mixture Design

Replace paragraph one with the following effective with the December 2019 letting:

(1) For each HMA mixture type used under the contract, develop and submit an asphaltic mixture design according to CMM 8-66 and conforming to the requirements of table 460-1 and table 460-2. Ensure that SMA mixture designs adhere to AASHTO R 46 and AASHTO M 325 in addition to the required test procedures outlined in CMM 8-66 table 1 and CMM 8-66 table 2. Determine the specific gravity of fines or super fines used as a mineral filler or additional stabilizer in SMA designs according to AASHTO T 100. The values listed are design limits; production values may exceed those limits. The department will review mixture designs and report the results of that review to the designer according to CMM 8-66.

TABLE 460-2 MIXTURE REQUIREMENTS

Mixture type	LT	MT	HT	SMA
LA Wear (AASHTO T96)				
100 revolutions(max % loss)	13	13	13	13
500 revolutions(max % loss)	50	45	45	35
Soundness (AASHTO T104) (sodium sulfate, max % loss)	12	12	12	12
Freeze/Thaw (AASHTO T103 as modified in CMM 8-60.2) (specified counties, max % loss)	18	18	18	18
Fractured Faces (ASTM D5821 as modified in CMM 860) (one face/2 face, % by count)	65/___	75 / 60	98 / 90	100/90
Flat & Elongated (ASTM D4791) (max %, by weight)	5 (5:1 ratio)	5 (5:1 ratio)	5 (5:1 ratio)	20 (3:1 ratio)
Fine Aggregate Angularity (AASHTO T304, method A, min)	40[1]	43[1]	45	45
Sand Equivalency (AASHTO T176, min)	40	40[2]	45	50
Clay Lumps and Friable Particle in Aggregate (AASHTO T112)	<= 1%	<= 1%	<= 1%	<= 1%
Plasticity Index of Material Added to Mix Design as Mineral Filler (AASHTO T89/90)	<= 4	<= 4	<= 4	<= 4
Gyratory Compaction				
Gyrations for Nini	6	7	8	7
Gyrations for Ndes	40	75	100	65
Gyrations for Nmax	60	115	160	100
Air Voids, %Va (%Gmm Ndes)	4.0 (96.0)	4.0 (96.0)	4.0 (96.0)	4.5 (95.5)
% Gmm Nini	<= 91.5[3]	<= 89.0[3]	<= 89.0	___
% Gmm Nmax	<= 98.0	<= 98.0	<= 98.0	<= 98.0
Dust to Binder Ratio[4] (% passing 0.075/Pbe)	0.6 - 1.2[5]	0.6 - 1.2[5]	0.6 - 1.2[5]	1.2 - 2.0
Voids filled with Binder (VFB or VFA, %)	68 - 80[6] [8]	65 - 75[6] [7] [9]	65 - 75[6] [7] [9]	70 - 80
Tensile Strength Ratio (TSR) (AASHTO T283)[10] [11]				
no antistripping additive	0.75 min	0.75 min	0.75 min	0.80 min
with antistripping additive	0.80 min	0.80 min	0.80 min	0.80 min
Draindown (AASHTO T305) (%)	___	___	___	<= 0.30
Minimum Effective Asphalt Content, Pbe (%)	___	___	___	5.5

[1] For No 6 (4.75 mm) nominal maximum size mixes, the specified fine aggregate angularity is 43 for LT and 45 MT mixes.

[2] For No 6 (4.75 mm) nominal maximum size mixes, the specified sand equivalency is 43 for MT mixes.

[3] The percent maximum density at initial compaction is only a guideline.

[4] For a gradation that passes below the boundaries of the caution zone (ref. AASHTO M323), the dust to binder ratio limits are 0.6 - 1.6.

[5] For No 6 (4.75 mm) nominal maximum size mixes, the specified dust to binder ratio limits are 1.0 - 2.0 for LT mixes and 1.5 - 2.0 for MT and HT mixes.

[6] For No. 6 (4.75mm) nominal maximum size mixes, the specified VFB is 67 - 79 percent for LT mixes and 66 - 77 percent for MT and HT mixes.

[7] For No. 5 (9.5mm) and No. 4 (12.5 mm) nominal maximum size mixtures, the specified VFB range is 70 - 76 percent.

[8] For No. 2 (25.0mm) nominal maximum size mixes, the specified VFB lower limit is 67 percent.

[9] For No. 1 (37.5mm) nominal maximum size mixes, the specified VFB lower limit is 67 percent.

[10] WisDOT eliminates freeze-thaw conditioning cycles from the TSR test procedure.

[11] Run TSR at asphalt content corresponding to 3.0% air void regressed design, or 4.5% air void design for SMA, using distilled water for testing.

460.2.8.2.1.3.1 Contracts with 5000 Tons of Mixture or Greater

Replace paragraph four with the following effective with the December 2019 letting:

(4) Use the test methods identified below, or other methods the engineer approves, to perform the following tests at the frequency indicated:

Blended aggregate gradations:

Drum plants:

- Field extraction by ignition oven according to AASHTO T308 as modified in CMM 8-36.6.3.6, chemical extraction according to AASHTO T-164 method A or B; or automated extraction according to ASTM D8159 as modified in CMM 8-36.6.3.1. Gradation of resulting aggregate sample determined according to AASHTO T30.
- Belt samples, optional for virgin mixtures, obtained from stopped belt or from the belt discharge using an engineer-approved sampling device and performed according to AASHTO T11 and T27.

Batch plants:

- Field extraction by ignition oven according to AASHTO T308 as modified in CMM 8-36.6.3.6, chemical extraction according to AASHTO T-164 method A or B; or automated extraction according to ASTM D8159 as modified in CMM 8-36.6.3.1. Gradation of resulting aggregate sample determined according to AASHTO T30.

Asphalt content (AC) in percent:

AC by ignition oven according to AASHTO T308 (CMM 8-36.6.3.6), by chemical extraction according to AASHTO T-164 method A or B; or by automated extraction according to ASTM D8159 as modified in CMM 8-36.6.3.1. Gradation of resulting aggregate sample determined according to AASHTO T30.

Bulk specific gravity of the compacted mixture according to AASHTO T166.

Maximum specific gravity according to AASHTO T209.

Air voids (Va) by calculation according to AASHTO T269.

VMA by calculation according to AASHTO R35.

460.2.8.2.1.4.2 Control Charts

Replace paragraph one with the following effective with the December 2019 letting:

(1) Maintain standardized control charts at the laboratory. Record contractor test results on the charts the same day as testing. Record data on the standardized control charts as follows:

- Blended aggregate gradation tests in percent passing. Of the following, plot sieves required in table 460-1: 37.5-mm, 25.0-mm, 19.0-mm, 12.5-mm, 9.5-mm, 4.75-mm, 2.36-mm, 1.18-mm, 0.60-mm, and 0.075-mm.
- Asphalt material content in percent.
- Air voids in percent.
- VMA in percent.

(2) Plot both the individual test point and the running average of the last 4 data points on each chart. Show QC data in black with the running average in red. Draw the warning limits with a dashed green line and the JMF limits with a dashed red line. The contractor may use computer generated black-and-white printouts with a legend that clearly identifies the specified color-coded components.

460.2.8.2.1.5 Control Limits

Replace paragraph one with the following effective with the December 2019 letting:

(1) Conform to the following control limits for the JMF and warning limits based on a running average of the last 4 data points:

ITEM	JMF LIMITS	WARNING LIMITS
Percent passing given sieve:		
37.5-mm	+/- 6.0	+/- 4.5
25.0-mm	+/- 6.0	+/- 4.5
19.0-mm	+/- 5.5	+/- 4.0
12.5-mm	+/- 5.5	+/- 4.0
9.5-mm	+/- 5.5	+/- 4.0
4.75-mm	+/- 5.0	+/- 4.0
2.36-mm	+/- 5.0	+/- 4.0
1.18-mm	+/- 4.0	+/- 3.0
0.60-mm	+/- 4.0	+/- 3.0
0.075-mm	+/- 2.0	+/- 1.5
Asphaltic content in percent	- 0.3	- 0.2
Air voids in percent[1]	+1.3/-1.0	+1.0/-0.7
VMA in percent[2]	- 0.5	- 0.2

[1] For SMA, JMF limits are +/-1.3 and warning limits are +/-1.0.

[2] VMA limits are based on requirements for each mix design nominal maximum aggregate size in table 460-1. For No. 6 (4.75mm) mixes, JMF limits are +/- 0.5 and warning limits are +/- 0.2.

460.3.2 Thickness

Replace paragraph one with the following effective with the December 2019 letting:

(1) Provide the plan thickness for lower and upper layers limited as follows:

NOMINAL SIZE	MINIMUM LAYER THICKNESS (in inches)	MAX LOWER LAYER THICKNESS (in inches)	MAX UPPER LAYER THICKNESS (in inches)	MAX SINGLE LAYER THICKNESS[3] (in inches)
No. 1 (37.5 mm)	4.5	6	4.5	6
No. 2 (25.0 mm)	3.0	5	4	6
No. 3 (19.0 mm	2.25	4	3	5
No. 4 (12.5 mm)[1]	1.75	3[2]	2.5	4
No. 5 (9.5 mm)[1]	1.25	3[2]	2	3
No. 6 (4.75 mm)	0.75	1.25	1.25	1.25

[1] SMA mixtures use nominal size No. 4 (12.5 mm) or No. 5 (9.5 mm).

[2] SMA mixtures with nominal sizes of No. 4 (12.5 mm) and No. 5 (9.5 mm) have no maximum lower layer thickness specified.

[3] For use on cross-overs and shoulders.

(2) Place leveling layers using No. 4 (12.5 mm), No. 5 (9.5 mm), or No. 6 (4.75 mm) mixtures. Leveling layers may be thinner than the minimum lower layer thickness for the mixture used.

(3) Place wedging layers as the contract specifies or engineer directs. Wedging layers have no specified minimum or maximum thickness.

460.3.3.1 Minimum Required Density

Replace paragraph one with the following effective with the December 2019 letting:

(1) Compact No. 6 mixtures in lower layers as specified in 450.3.2.6.2 and in upper layers as specified in 450.3.2.6.3. For other HMA mixtures, compact all layers to the density table 460-3 specifies.

TABLE 460-3 MINIMUM REQUIRED DENSITY[1]

LOCATION	LAYER	PERCENT OF TARGET MAXIMUM DENSITY		
		MIXTURE TYPE		
		LT and MT	HT	SMA[5]
TRAFFIC LANES[2]	LOWER	93.0[3]	93.0[4]	___
	UPPER	93.0	93.0	93.0
SHOULDERS & APPURTENANCES	LOWER	91.0	91.0	___
	UPPER	92.0	92.0	92.0

[1] The table values are for average lot density. If any individual density test result falls more than 3.0 percent below the minimum required target maximum density, the engineer will investigate the acceptability of that material according to CMM 8-15.11.

[2] Includes side roads, crossovers, turn lanes, ramps, parking lanes, bike lanes, and park-and-ride lots as defined by the contract plans.

[3] Minimum reduced by 2.0 percent for a lower layer constructed directly on crushed aggregate or recycled base courses.

[4] Minimum reduced by 1.0 percent for a lower layer constructed directly on crushed aggregate or recycled base courses.

460.3.3.2 Pavement Density Determination

Replace paragraph three with the following effective with the December 2019 letting:

(3) A lot is defined in CMM 8-15 and placed within a single layer for each location and target maximum density category indicated in table 460-3. The lot density is the average of all samples taken for that lot. The department determines the number of tests per lot according to CMM 8-15.

460.5.2.1 General

Replace paragraph six with the following effective with the December 2019 letting:

(6) If during a QV dispute resolution investigation the department discovers unacceptable mixture defined by one or more of the following:

- Va less than 2.5 or greater than 6.5 percent for SMA, or for other mixes, less than 1.5 or greater than 5.0 percent.
- VMA more than 1.0 percent below the minimum or above the maximum specified in table 460-1.
- AC more than 0.5 % below the JMF target.

Remove and replace the material, or if the engineer allows the mixture to remain in place, the department will pay for the quantity of affected material at 50 percent of the contract price.

501.2.5.5 Sampling and Testing

Replace paragraph one with the following effective with the December 2019 letting:

(1) Sample and test aggregates for concrete according to the following:

Sampling aggregates[1]	AASHTO T2
Lightweight pieces in aggregate	AASHTO T113
Material finer than No. 200 sieve[1]	AASHTO T11
Unit weight of aggregate	AASHTO T19
Organic impurities in sands	AASHTO T21
Sieve analysis of aggregates	AASHTO T27
Effect of organic impurities in fine aggregate	AASHTO T71
Los Angeles abrasion of coarse aggregate	AASHTO T96
Alkali Silica Reactivity of Aggregates	ASTM C1260
Alkali Silica Reactivity of Combinations of Cementitious Materials and Aggregates	ASTM C1567
Freeze-thaw soundness of coarse aggregate[1]	AASHTO T103
Sodium sulfate soundness of coarse aggregates (R-4, 5 cycles)	AASHTO T104
Specific gravity and absorption of fine aggregate	AASHTO T84
Specific gravity and absorption of coarse aggregate[1]	AASHTO T85
Flat & elongated pieces based on a 3:1 ratio[1]	ASTM D4791
Sampling fresh concrete	AASHTO R60
Making and curing concrete compressive strength test specimens	AASHTO T23
Compressive strength of molded concrete cylinders	AASHTO T22

[1] As modified in CMM 8-60.

505.2.2 Bar Steel Reinforcement

Replace paragraph one with the following effective with the December 2019 letting:

(1) Conform to AASHTO M31, type S or type W.

505.2.3 High-Strength Bar Steel Reinforcement

Replace paragraph one with the following effective with the December 2019 letting:

(1) Conform to AASHTO M31, grade 60, type S or type W.

505.2.4.1 General

Replace paragraph one with the following effective with the December 2019 letting:

(1) Conform to AASHTO M31, grade 60, type S or type W. Ensure that the coating is applied in a CRSI certified epoxy coating plant. Bend bars that require bending before coating, unless the fabricator can bend the bar without damaging the coating.

505.2.6.1 General

Replace paragraph one with the following effective with the December 2019 letting:

(1) For dowel bars and straight tie bars, there is no requirement for bend tests. Ensure that the bars are the specified diameter and length the plans show.

505.2.6.2.2 Solid Dowel Bars

Replace paragraph one with the following effective with the December 2019 letting:

(1) Furnish coated bars conforming to AASHTO M31 grade 40 or 60. Alternatively the contractor may furnish dowel bars conforming to AASHTO M227 grade 70-80. Coat in a plant certified by the Concrete Reinforcing Steel Institute with a thermosetting epoxy conforming to AASHTO M254, type B.

520.3.7 Deflection Testing

Replace paragraphs three and four with the following effective with the June 2020 letting:

(3) Test 100 percent of the installed length of pipe 24 inches or greater in diameter. Ensure that the mandrel passes through the entire section in one pass when pulled by hand without using excessive force. If the designated length of pipe fails, the engineer may require additional testing.

(4) For pipe less than 24 inches in diameter, the engineer will designate at least 10 percent of the installed length of pipe for testing. The mandrel must pass through the entire section in one pass when pulled by hand without using excessive force. If the designated length of pipe fails, engineer may require additional testing.

(5) Relay or replace pipe that does not pass deflection testing. Retest all relayed or replaced pipe.

608.3.7 Deflection Testing

Replace paragraphs three and four with the following effective with the June 2020 letting:

(3) Test 100 percent of the installed length of pipe 24 inches or greater in diameter. Ensure that the mandrel passes through the entire section in one pass when pulled by hand without using excessive force. If the designated length of pipe fails, the engineer may require additional testing.

(4) For pipe less than 24 inches in diameter, the engineer will designate at least 10 percent of the installed length of pipe for testing. The mandrel must pass through the entire section in one pass when pulled by hand without using excessive force. If the designated length of pipe fails, engineer may require additional testing.

(5) Relay or replace pipe that does not pass deflection testing. Retest all relayed or replaced pipe.

625.3.2 Processing Topsoil or Salvaged Topsoil

Delete paragraph four effective with the December 2019 letting.

701.3.1 General

Replace the entire text with the following effective with the December 2019 letting:

(1) Perform contract required QC tests for samples randomly located according to CMM 8-30. Use the test methods specified in table 701-1.

TABLE 701-1 TESTING AND CERTIFICATION STANDARDS

TEST	TEST STANDARD	MINIMUM REQUIRED CERTIFICATION (any one of the certifications listed for each test)
Random Sampling	CMM 8-30.9.2	Transportation Materials Sampling Technician (TMS) Aggregate Technician I (AGGTEC-I) AGGTEC-I Assistant Certified Technician (ACT-AGG) PCC Technician I (PCCTEC-I) PCCTEC-I Assistant Certified Technician (ACT-PCC) Grading Technician I (GRADINGTEC-I) Grading Assistant Certified Technician (ACT-GRADING)
Sampling Aggregates	AASHTO T2[1][4]	TMS, AGGTECT-1, ACT-AGG
Percent passing the No. 200 sieve	AASHTO T11[1]	AGGTEC-I, ACT-AGG
Fine and coarse aggregate gradation	AASHTO T27[1]	
Aggregate moisture content	AASHTO T255[1]	
Fractured faces	ASTM D5821[1]	
Liquid limit	AASHTO T89	Aggregate Testing for Transportation Systems (ATTS) GRADINGTEC-I, or ACT-GRADING
Plasticity index	AASHTO T90[3]	
Sampling freshly mixed concrete	AASHTO R60	PCCTEC-1 ACT-PCC
Air content of fresh concrete	AASHTO T152[2]	
Air void system of fresh concrete	AASHTO TP118[5]	
Concrete slump	AASHTO T119[2]	
Concrete temperature	ASTM C1064	
Making and curing concrete cylinders	AASHTO T23	
Moist curing for concrete cylinders	AASHTO M201	
Concrete compressive strength	AASHTO T22	Concrete Strength Tester (CST) CST Assistant Certified Technician (ACT-CST)
Concrete flexural strength	AASHTO T97	
Profiling	—	PROFILER

[1] As modified in CMM 8-60.

[2] As modified in CMM 8-70.

[3] A plasticity check, if required under individual QMP provisions, may be performed by an AGGTEC-I in addition to the certifications listed for liquid limit and plasticity index tests.

[4] Plant personnel may operate equipment to obtain samples under the direct observation of a TMS or higher.

[5] Consolidate by rodding.

715.2.1 General

Replace paragraph five with the following effective with the December 2019 letting:

(5) For new lab-qualified mixes, test the air void system of the proposed concrete mix. Include the SAM number as a part of the mix design submittal.

715.3.1.1 General

Replace paragraph two with the following effective with the December 2019 letting:

(2) Test the air void system at least once per lot and enter the SAM number in the MRS for information only. SAM testing is not required for the following:

- For lots with less than 4 sublots.
- High early strength (HES) concrete.
- Special high early strength (SHES) concrete.
- Concrete placed under the following bid items:
  - Concrete Pavement Approach Slab
  - Concrete Masonry Culverts
  - Concrete Masonry Retaining Walls
  - Steel Grid Floor Concrete Filled
  - Crash Cushions Permanent
  - Crash Cushions Permanent Low Maintenance
  - Crash Cushions Temporary

730.3.1 General

Replace paragraph three with the following effective with the December 2019 letting:

(3) Stockpile tests[1] can be used for multiple projects. If placement on a project does not begin within 120 calendar days after the date the stockpile sample was obtained, retest the stockpile before placement begins.

[1] Replace the stockpile test with an in-place production test for concrete pavement recycled and processed on-site; test on the first day of production.

730.3.2 Contractor QC Testing

Replace paragraph four with the following effective with the December 2019 letting:

(4) Submit test results to the engineer within one business day of obtaining the sample, except any aggregate classification with recycled asphalt may be submitted within two business days.

730.3.4.1 Contractor QC Testing

Replace the entire text with the following effective with the December 2019 letting:

(1) For small quantity contracts with <= 500 tons, submit 2 production tests or 1 stockpile test. Production tests are valid for 3 years from the date the production sample was obtained. Begin placement within 3 years of the date sampled.

(2) For small quantity contracts with <= 6000 tons and > 500 tons, do the following:

1. Conduct one QC stockpile test before placement.
2. Submit 2 production tests or conduct 1 loadout test instead of placement tests. Production tests are valid for 3 years from the date the production sample was obtained; the first day of placement must be within 3 years of the date sampled.
3. If the actual quantity placed is more than 6000 tons, on the next day of placement perform one additional random QC test for each 3000 tons of overrun, or fraction thereof.

740.3.2 Contractor QC Testing

Replace paragraph three with the following effective with the December 2019 letting:

(3) Field-locate the beginning and ending points for each profile run. Measure the profiles of each standard and partial segment. Define primary segments starting at a project terminus and running contiguously along the mainline to the other project terminus. 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.

Errata

104.6.1.2.3 Drop-Off and Hazard Protection

Correct errata by changing 2 inches or greater to greater than 2 inches.

(1) Eliminate vertical drop-offs greater than 2 inches and edge slopes steeper than 3:1 between adjacent lanes open to traffic.

305.3.3.3 Shoulders Adjacent to Asphaltic Pavement or Surfacing

Correct errata by changing 2-inch or more to greater than 2-inch.

(2) If the roadway remains open to through traffic during construction and a greater than 2-inch drop-off occurs within 3 feet or less from the edge of the traveled way, eliminate the drop-off within 48 hours after completing that days paving. Unless the special provisions specify otherwise, provide aggregate shoulder material compacted to a temporary 3:1 or flatter cross slope from the surface of the pavement edge.

501.3.2.2 Concrete Proportions

Correct errata in footnote [8] by allowing either grade 100 or grade 120 slag in C-S concrete.

[8] For grade C-S concrete, use grade 100 or grade 120 slag.

614.3.6 Thrie Beam Structure Approach Retro Fits

Correct errata by deleting the galvanization reference already required under 614.3.1.

(2) Install posts and drill holes into existing thrie beam conforming to 614.3.2.

628.3.7 Mobilizations for Erosion Control

Correct errata by clarifying that mobilizations for erosion control include proceeding with the work.

(1) Move personnel, equipment, and materials to the project site and promptly proceed with construction of erosion control items at the stages the contract indicates or the engineer directs.

Wisconsin Department of Transportation

Division of Transportation Systems Development
Bureau of Project Development
4822 Madison Yards Way, 4th Floor South
Madison, WI 53705

Telephone: (608) 266-1631
Facsimile (FAX): (608) 266-8459

September 24, 2020

NOTICE TO ALL CONTRACTORS:

Proposal #01:

1060-33-84, WISC 2020 466
Zoo IC, USH 45
Swan Blvd to Burleigh Street
USH 45
Milwaukee County

1060-34-77
Zoo IC, North Avenue
118th Street to 116th Street
Loc Str
Milwaukee County

1100-18-73, WISC 2021 001
Zoo IC, Polymer Overlays
Zoo IC Mainline Bridges
Var Hwy
Milwaukee County

1100-18-76, WISC 2002 467
Zoo I/C Overpasses
Various Locations
Var Hwy
Milwaukee County

Letting of October 13, 2020

This is Addendum No. 03, which provides for the following:

Special Provisions:

Revised Special Provisions	
Article No.	Description
5	Prosecution and Progress
9	Utilities
10	Other Contracts
142	Lighting Systems
296	Steel Casing w/ Sanitary Sewer 10-Inch PVC Carrier, Item SPV.0090.5104

Added Special Provisions	
Article No.	Description
351	Clay Cap, Item SPV.0035.0004
352	Lighting Pull Boxes Wauwatosa 17-Inch x 30-Inch, Item SPV.0060.1010; Lighting Pull Boxes Wauwatosa 24-Inch x 36-Inch, Item SPV.0060.1011
353	23-FT Standard Concrete Light Poles and Arms, Item SPV.0060.1012
354	Lighting Control Cabinet 240/480 - Wauwatosa, Item SPV.0060.1013
355	Luminaires Utility LED A (30K), Item SPV.0060.1014; Luminaires Utility LED C (30K), Item SPV.0060.1015
356	Polyethylene Duct 1 ¼-Inch, Item SPV.0090.1004

Schedule of Items:

Revised Bid Item Quantities					
Bid Item	Item Description	Unit	Old Quantity	Revised Quantity	Proposal Total
502.3200	Protective Surface Treatment	SY	4,652	1	4,653
505.0600	Bar Steel Reinforcement HS Coated Structures	LB	3,441,315	4,290	3,445,605
506.0605	Structural Steel HS	LB	4,873,269	28,998	4,902,267
652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	69,695	1,520	71,215
652.0235	Conduit Rigid Nonmetallic Schedule 40 3-Inch	LF	7,079	370	7,449
654.0105	Concrete Bases Type 5	EACH	146	-20	126
655.0610	Electrical Wire Lighting 12 AWG	LF	34,845	-645	34,200
655.0620	Electrical Wire Lighting 8 AWG	LF	55,970	3,580	59,550
655.0630	Electrical Wire Lighting 4 AWG	LF	82,380	6,000	88,380
657.0322	Poles Type 5-Aluminum	EACH	146	-18	128
657.0610	Luminaire Arms Single Member 4 1/2-Inch Clamp 6-FT	EACH	106	20	126
657.0620	Luminaire Arms Single Member 6-Inch Clamp 4-FT	EACH	144	-40	104
659.1125	Luminaires Utility LED C	EACH	142	-19	123
SPV.0035.0001	EBS Excavation	CY	14,105	56,418	70,523
SPV.0035.0002	EBS Backfill	CY	14,105	56,418	70,523
SPV.0090.0600	Salvage Temporary Precast Concrete Barrier Left In Place	LF	1,087.5	312.5	1,400
SPV.0090.4105	Fence Decorative Wall	LF	1,927	2	1,929
SPV.0110.4001	Timber Lagging	MBM	146	3	149
SPV.0165.4015	Geocomposite Drain Board	SF	44,470	-540	43,930
SPV.0195.0001	Fly Ash Stabilization	TON	8,579	-4,289	4,290

Added Bid Item Quantities					
Bid Item	Item Description	Unit	Old Quantity	Revised Quantity	Proposal Total
SPV.0035.0004	Clay Cap	CY	0	6,300	6,300
SPV.0060.1010	Lighting Pull Boxes Wauwatosa 17-Inch x 30-Inch	EACH	0	12	12
SPV.0060.1011	Lighting Pull Boxes Wauwatosa 24-Inch x 36-Inch	EACH	0	2	2
SPV.0060.1012	23-FT Standard Concrete Light Poles and Arms	EACH	0	13	13
SPV.0060.1013	Lighting Control Cabinet 240/480 - Wauwatosa	EACH	0	2	2
SPV.0060.1014	Luminaires Utility LED A (30K)	EACH	0	16	16
SPV.0060.1015	Luminaires Utility LED C (30K)	EACH	0	19	19
SPV.0090.1004	Polyethylene Duct 1 ¼-Inch	LF	0	950	950

Deleted Bid Item Quantities					
Bid Item	Item Description	Unit	Old Quantity	Revised Quantity	Proposal Total
659.1115	Luminaires Utility LED A	EACH	23	-23	0

Plan Sheets:

Revised Plan Sheets	
Plan Sheet	Plan Sheet Title (brief description of changes to sheet)
25	Typical Sections – Added labels, tie bars, and joints
26	Typical Sections – Added labels, tie bars, and joints
60	Construction Details – Revised HPC Pavement Joint Details
598	Lighting Plans – Update for Wauwatosa lighting
599	Lighting Plans – Update for Wauwatosa lighting
600	Lighting Plans – Update for Wauwatosa lighting
601	Lighting Plans – Update for Wauwatosa lighting
602	Lighting Plans – Update for Wauwatosa lighting
603	Lighting Plans – Update for Wauwatosa lighting
604	Lighting Plans – Update for Wauwatosa lighting
605	Lighting Plans – Update for Wauwatosa lighting
606	Lighting Plans – Update for Wauwatosa lighting
607	Lighting Plans – Update for Wauwatosa lighting
990	Miscellaneous Quantities – Revised Salvage Temporary Precast Concrete Barrier Left In Place quantity
1009	Miscellaneous Quantities – Updated the cross stitching table with locations
1011	Miscellaneous Quantities – Added Clay Cap table
1012	Miscellaneous Quantities (Earthwork Summary) – Moved note (7) from column E to column D. Revised EBS Excavation, EBS Backfill, and Fly Ash Stabilization quantities
1013	Miscellaneous Quantities (Earthwork Summary) – Moved note (7) from column E to column D. Revised EBS Excavation, EBS Backfill, and Fly Ash Stabilization quantities
1014	Miscellaneous Quantities (Earthwork Summary) – Moved note (7) from column E to column D. Revised EBS Excavation, EBS Backfill, and Fly Ash Stabilization quantities. Updated percentages within notes (2) and (6)
1154	Miscellaneous Quantities – Update for Wauwatosa lighting
1155	Miscellaneous Quantities – Update for Wauwatosa lighting
1156	Miscellaneous Quantities – Update for Wauwatosa lighting
1157	Miscellaneous Quantities – Update for Wauwatosa lighting
1158	Miscellaneous Quantities – Update for Wauwatosa lighting
1159	Miscellaneous Quantities – Update for Wauwatosa lighting
1160	Miscellaneous Quantities – Update for Wauwatosa lighting
1161	Miscellaneous Quantities – Update for Wauwatosa lighting
1984	B-40-878. See revised plans
2180	R-40-561. See revised plans
2197	R-40-564. See revised plans
2344	R-40-576. See revised plans
2348	R-40-576. See revised plans
2349	R-40-576. See revised plans
2352	R-40-576. See revised plans
2353	R-40-576. See revised plans
2358	R-40-576. See revised plans
2359	R-40-576. See revised plans
2360	R-40-576. See revised plans
2367	R-40-576. See revised plans

Added Plan Sheets	
Plan Sheet	Plan Sheet Title (brief description of why sheet was added)
54A	Construction Details – Cross-stitching locations
54B	Construction Details – Cross-stitching locations
60A	Construction Details – HPC Pavement Joint Details
545A	Lighting Details – Added Wauwatosa pole, wiring, and pull box detail
1422A	Add SDD Single Slope Roadside Retaining Wall - Cross Section and Steel Details
1422B	Add SDD Single Slope Roadside Retaining Wall - Placement and Drainage

Deleted Plan Sheets	
Plan Sheet	Plan Sheet Title (brief description of why sheet was deleted)
700	This is an old detail. SDD Temporary Traffic Control Sign Mounting will be used.

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

1060-33-84, 1060-34-77, 1100-18-73, & 1100-18-76

September 24, 2020

Special Provisions

5. Prosecution and Progress

Add the following to section titled **H.5.4 112th Street***:*

Maintain access to driveways along 112th Street.

Do not construct R-40-576 until sanitary sewer and watermain along 112th Street are constructed and accepted as complete, as approved by the engineer.

Replace paragraphs three and four under section titled **R Railroad Construction Coordination** *with the following:*

The second phase consists of the railroad taking the track out of service and throwing the track to the shoofly track built by the contractor in phase one. It is anticipated this work will take 2 days to complete.

The third phase consists of the contractor building the main track and bridge on the final alignment. The contractor shall notify the railroad 90 days in advance of completing phase three to allow railroad crews to mobilize for their work.

9. Utilities

Replace the second bullet under subsection titled **AT&T Wisconsin** *under section titled* **Project 1060-33-84 (Zoo IC, USH 45)** *with the following:*

- An existing underground communications line beginning beyond the westerly project limits and running easterly along the median of North Avenue to a manhole at Station 100NO+23, 11'LT and continues to run easterly to a manhole at 106NO+66, 11'LT. From there it continues northeasterly to 107NO+06, 22'LT where it will turn and run easterly to Station 119NO+75, 22'LT and then turn and run southeasterly to a manhole at Station 120NO+10, 11'LT From there it continues easterly to a manhole at Station 124NO+06, 11'LT and continues easterly to beyond the project limits. Prior to and during construction, AT&T Wisconsin will relocate portions of this line beginning beyond the westerly project limits and running easterly along a line 20' north of the North Avenue reference line to Station 99NO+33, 20'LT and turning southeasterly to an existing manhole at Station 100NO+23, 11'LT. From there it runs northeasterly to Station 100NO+58, 20'LT and turns easterly running along a line 20' north of the North Avenue reference line to Station 106NO+00, 20'LT and turning southeasterly to an existing manhole at Station 106NO+66, 11'LT. AT&T Wisconsin relocations anticipated to occur between September 2020 and February 2021. The remainder of this line will remain in place without adjustment from the manhole at Station 106NO+66, 11'LT running east to beyond the easterly project limits.

Replace paragraph two under subsection titled **Sprint Communications** *under section titled* **Project 1060-33-84 (Zoo IC, USH 45)** *with the following:*

Sprint Communications has an existing underground communications line within the project limits beginning beyond the southerly project limits and running northerly along a line approximately 15' east of the UPRR westerly right of way to the UPRR structure over USH 45 where it is attached to the westerly side of the structure. From there it continues northerly across USH 45 on the structure and continues northerly along a line approximately 15' east of the UPRR westerly right of way to the UPRR structure over North Avenue where it is attached to the westerly side of the structure. From there it continues northerly across North Avenue on the structure and continues northerly to beyond the project limits. Prior to and during construction, Sprint Communications will relocate portions of this line beginning at a point approximately 40' south of the centerline of Walnut Road by boring a new line easterly under the UPRR tracks to a point 15' west of the easterly right of way of the UPRR. From there they will turn and bore a new line northerly along a line 15' west of the easterly right of way of the UPRR, crossing under USH 45 at Station 417NS+15, and continuing northerly along a line 15' west of the easterly right of way to a point approximately 70' south of the centerline of North Avenue. From there they will turn and bore a new line under the UPRR tracks and connect to the existing line at the west side of the UPRR. Relocations anticipated to occur from October 1st, 2020 through January 1st, 2021.

Delete the entire subsection titled **Wauwatosa, City of – Traffic Signals** *under section titled* **Project 1060-33-84 (Zoo IC, USH 45)***:*

Delete the third bullet under subsection titled **We Energies - Electric** *under section titled* **Project 1060-33-84 (Zoo IC, USH 45)***:*

Replace the fourth bullet under subsection titled **We Energies - Electric** *under section titled* **Project 1060-33-84 (Zoo IC, USH 45)** *with the following:*

- An underground electric line beginning beyond the southerly project limits and running northerly to a WisDOT lighting cabinet at Station 403NS+40, 81'LT which feeds the lights in the underdeck of the USH 45 bridge. We Energies will discontinue this line in place and reconstruct a new electric service during construction in conjunction with reconstruction of lighting facilities as shown in the plans

Replace the 21st and 22nd bullets under subsection titled **We Energies - Electric** *under section titled* **Project 1060-33-84 (Zoo IC, USH 45)** *with the following:*

Delete the last sentence of the twenty-first bullet of the **We Energies – Electric** *section.*

- An underground electric line beginning at a pole on the southerly side of Meinecke Avenue at Station 16ME+56, 36'RT and running easterly along the southerly right-of-way of Meinecke Avenue to Station 18ME+11, 30'RT where it turns and runs northerly, crossing Meinecke Avenue at Station 18ME+11, and continuing northerly to Station 18ME+11, 29'LT. From there it turns and runs easterly, crossing 113th Street at Station 19TA+30, and continuing easterly to Station 19TA+32, 22'RT. From there it turns and runs northerly to a transformer and meter serving a Wauwatosa lighting cabinet at Station 19TA+70, 25'RT. We Energies will discontinue this line in place and reconstruct a new electric service during construction in conjunction with reconstruction of lighting and signal facilities as shown in the plans.

- An overhead electric line beginning at a pole on the westerly right-of-way of USH 45 at Station 483NS+06, 152'LT and running northwesterly along the westerly right-of-way of USH 45 to a pole at Station 487NS+63, 268'LT. From there it turns and runs northerly along the westerly right-of-way of USH 45 to a pole at Station 490NS+46, 243'LT.

Insert the following after the third bullet under subsection titled **We Energies - Gas** *under section titled* **Project 1060-33-84 (Zoo IC, USH 45)**:

- An underground electric line beginning at a pole at Station 405NS+73, 97'LT and running southeasterly to a transformer at Station 403NS+05, 77'LT where it turns and runs northwesterly to a WisDOT lighting cabinet at Station 403NS+40, 81'LT.

Delete the first bullet under subsection titled **We Energies - Gas** *under section titled* **Project 1060-33-84 (Zoo IC, USH 45)**

Delete the third bullet under subsection titled **We Energies - Gas** *under section titled* **Project 1060-33-84 (Zoo IC, USH 45)**

Replace paragraph one under subsection titled **WisDOT Signals** *under section titled* **Project 1060-33-84 (Zoo IC, USH 45)** *with the following:*

WisDOT has no existing traffic signal facilities within the project limits. Construct, relocate, reconstruct, remove, discontinue and leave in place portions of these facilities as shown in the plans and bid items.

Delete entire section titled **Project 1060-34-84 (Zoo IC, W-S Ramp)**

Replace the first bullet under subsection titled **AT&T Wisconsin** *under section titled* **Project 1060-34-77 (Zoo IC, North Avenue)** *with the following:*

- An existing underground communications line beginning beyond the westerly project limits and running easterly along the median of North Avenue to a manhole at Station 100NO+23, 11'LT and continuing easterly to a manhole beyond the project limits at Station 106NO+66, 11'LT. Prior to and during construction, AT&T Wisconsin will relocate portions of this line beginning beyond the westerly project limits and running easterly along a line 20' north of the North Avenue reference line to Station 99NO+33, 20'LT and turning southeasterly to an existing manhole at Station 100NO+23, 11'LT. AT&T Wisconsin relocations anticipated to occur between September 2020 and February 2021.

Delete the entire subsection titled **Wauwatosa, City of – Traffic Signals** *under section titled* **Project 1060-34-77 (Zoo IC, North Avenue)**:

Replace the third bullet under subsection titled **We Energies - Electric** *under section titled* **Project 1060-34-77 (Zoo IC, North Avenue)** *with the following:*

- An underground electric line beginning at a pole at Station 164TX+00, 23'LT and running northwesterly to a transformer and meter at Station 164TX+04, 26'LT. From there it runs southerly and turns westerly to a manhole located in the north terrace area of North Avenue at Station 98NO+88, 52'LT where it turns and runs southerly to a meter serving a Wauwatosa lighting cabinet in the median at Station 98NO+94, 3'LT. We Energies will discontinue these facilities in place and reconstruct new electric services during construction in conjunction with reconstruction of lighting and signal facilities as shown in the plans.

  Delete the last sentence of the third bullet of the **We Energies – Electric** *section.*

10. Other Contracts

Add the following to the end of the section:

Contract 20-01, Project #3009 – City of Wauwatosa

N. 113th St. Utility Improvements

W. Gilbert Ave. to 100' S. of W. North Ave.

Wauwatosa contacts: Mike Maki; (414) 479-8991; Nick Deming: (414) 479-3541

Coordinate construction activities with City of Wauwatosa contractor to allow the construction of sanitary sewer in WisDOT right-of-way from the intersection of 113th Street and Garfield Avenue to 100' south of North Avenue during North Avenue ramp closures.

City of Wauwatosa – Street and Wall Construction 2021

Center Street

112th Street to HWY 100 (Mayfair Road)

City of Wauwatosa Engineer contact: Bill Wehrley (414) 479-8927

142. Lighting Systems

Replace entire article language with the following:

General
Add the following to standard specification sections 651, 652, 653, 654, 655, 656, 657 and 659.

All the work necessary to comply with revisions to standards specifications mentioned herewith shall be incidental to associated pay items or to the project including coordination, materials, and labor. No additional payment shall be made to the Contractor.

Add the following to standard specification subsection 651.2:

Wisconsin Department of Transportation
Materials indicated to be returned to the Department shall be hauled to one of the following two locations:

1. State Electrical Shop at 935 South 60th street, West Allis, as directed by Miss. Bree Johns-Konkol, tel. (414) 266-1170.
2. Milwaukee County Grounds, 10191 West Watertown Plank Road, Wauwatosa, as directed by Mr. Pat Stoetzel, tel. (414) 750-5306.

Arrange pickups and deliveries 3 days in advance and during regular business hours (Monday – Thursday 7:00 AM to 3:45 PM).

City of Wauwatosa
For material to be furnished by the City of Wauwatosa or returned to the City of Wauwatosa, schedule deliveries or pick-ups three working days in advance so that deliveries or pick-ups occur during normal business hours Monday through Thursday. Contact Randy Michelz, at rmichelz@wauwatosa.net or at (414) 471-8429

The City of Wauwatosa is located at 11100 W. Walnut Road, Wauwatosa, WI, 53226.

Add the following to standard specification subsection 651.3.1:

Any circuit that the Contractor does not personally tag out at the disconnect shall be considered live, and will be subject to being activated by another person with no notice to the Contractor. Make tagouts with manufactured tags, and endorse them with the date and the name of the Contractor. Clear tagouts at the end of the workday. The Department or City of Wauwatosa does not employ a load dispatcher and has no intent to do so. Each electrical worker is responsible for their own protection from automatic switching and from switching by others.

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.

Add the following to standard specification subsection 651.5:

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 freeway lighting pay items included in this contract. The Department will not measure conductors or conduits that have been abandoned in place or removed for scrap. The Department will allow, at the Contractor's discretion, for the salvaging of conductors to be abandoned, if possible.

Add the following to standard specification subsection 652.3.1.4:

Support conductors at the top of the vertical raceway or as close as practical if the vertical rise exceeds 40-feet. Provide additional supports as shown; in no case shall the distance between supports exceed that shown in Table 300.19(A) of the Wisconsin State Electric Code.

Add the following to standard specification subsection 653.3(1):

This provision modifies the standard detail drawing for pull boxes and thereby both the standard items and SPV pay item for pull boxes. Lighting pull box covers shall read "LIGHTING".

Add the following to standard specification subsection 655.3.1:

Wet location splices are not anticipated on this project and not shown in the plans. In the event that the Engineer allows wet location splices, make pull box splices with Engineer approved epoxy kit for the freeway lighting and should be incidental to the installation of pull box. Use City of Wauwatosa approved splice kit for the local roadway lighting systems city of Wauwatosa accepts Scotchcast 82-A1 for inline splices and 82-B1 for wye splices as manufactured by 3M. Substitute materials shall be approved in writing by the engineer prior to use.

At each pull point or access point, indicate the line side bundle with a lap of blue tape. Conductors in poles and in pull boxes or other terminations shall be marked with a 6-Inch long blue tape wrap to identify the set of conductors emanating from distribution center (feeder).

Add the following to standard specification subsection 655.3.7(4):

Where two or more wire networks pass through a pull point, tag each circuit network (i.e. A/B/N and C/D/N) with approved all-weather tags.

Add the following to standard specification subsection 657.2:

Non-breakaway poles (mounted on structures, concrete bases or behind noise wall barriers without transformer base), as well as at stems of sign bridges containing electrical wires are to be double nutted and Contractor shall install galvanized rat screen enclosing the bottom of pole area; extra nuts and screen incidental.

Add the following to standard specification subsections 657.3.1and 657.3.5:

Corrosion protection measures described in subsections 657.3.1 and 657.3.5 of the standard specifications are invoked for breakaway transformer bases and aluminum light poles. The Contractor shall avoid contact of dissimilar metals in erecting the pole on its foundation and/or breakaway device. Any concern of trapped moisture or potential corrosion cell shall be resolved to the satisfaction of the Engineer.

Manufacturer's Warranty for LED luminaires: The manufacturer shall warrant to the Department that each complete luminaire (consisting of the housing, optical assembly, LED drivers, surge protection and wiring) will be free from defects in material and workmanship for ten (10) years from the date that the luminaire are put into service. Luminaires shall be installed within one year of manufacture.

If any luminaires fail to meet the above warranty, the Department shall provide the manufacturer with a written notice of any defect within thirty (30) days after discovery of the defect. The manufacturer shall provide all materials, luminaires, replacement component parts, labor and all incidentals necessary to restore the luminaire to a fully operational, installed condition.

Submittal Requirements for LED luminaires: Considering the rapid advancement in LED technology, the overall project construction and duration of construction, within 10 calendar days after contract execution, the Contractor is responsible to coordinate the lead time for LED luminaires purchase and installation schedule with the Engineer and the Department's Lighting Engineer, Eric Perea, at eric.perea@dot.wi.gov or at (414) 750-0935 for freeway lighting system and City of Wauwatosa, Randy Michelz, at rmichelz@wauwatosa.net or (414) 471-8429 for local roadway lighting system prior to order LED luminaires. The LED luminaires purchasing may be done during later stage of construction as directed by the Department which shall not delay the construction.

Add the following to standard specification subsection 659.3:

Provide and install / replace Plaques Light Pole on all poles located in the median at a mounting height of 6-inch above the highest adjacent safety barrier or obstruction.

Add the following to standard specification 659.3.1:

Contractor shall be responsible to provide adequate temporary roadway lighting during all the construction stages not shown on the temporary lighting plans, but which are necessitated by field conditions or by any construction phasing changes. Installation of temporary lighting not shown on temporary lighting plans shall be paid according to appropriate pay items included in this contract. Contractor shall be responsible to submit a redline markup plans for any additional temporary lighting to the Engineer for approval prior to installation.

296. Steel Casing w/ Sanitary Sewer 10-Inch PVC Carrier, Item SPV.0090.5104

Add the following after the last paragraph of section titled **B Materials***:*

Provide controlled low strength backfill for the boring and receiving pits 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 before casting successive lifts such that it can support foot traffic without indenting more than 2 inches in approximately 1 hour. Provide a mixture that also meets the following requirements.

Test	Method	Value
Flow (inch)	ASTM D-6103	9 min
Compressive Strength (psi)	ASTM D-4832	50 min. @ 1 hour
		50-80 @ 28 days
		80-300 @ 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.

Delete the tenth paragraph of the **C Construction** *section and replace with the following paragraphs:*

Damage to utilities and the resulting repair, temporary service cost, etc., shall be borne by the contractor.

Place controlled low strength backfill in the boring and receiving pits 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.

Delete the last paragraph of the **E Payment** *section and replace with the following:*

Payment is full compensation for furnishing all labor, equipment, tools, materials and incidentals including sheeting, shoring, bracing, boring and receiving pit excavations and backfill, dewatering, casing pipe, removing shoring, removing sheeting, removing bracing, spacers, carrier pipe, end seals and lubricant work in accordance to the contract.

351. Clay Cap, Item SPV.0035.0004.

A Description

This special provision describes furnishing and installing the clay cap material to cap the low level petroleum contaminated soil material placed at the designated fill sites as shown in the plans.

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 cap material from onsite or borrow source(s) documenting that the clay meets or exceeds the clay material specifications prior to the start of cap 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 according 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.

Number of Required Tests

Test	One Borrow Source Only and Also For Onsite Clay	Multiple Borrow Sources	Minimum Requirement
Grain Size Analysis	3 (Total)	1 test/4,500 cy or less/site[(a)]	≥ 50% by Wt. Passing 200 Sieve
Hydrometer Analysis	3 (Total)	1 test/4,500 cy or less/site[(a)]	Info. Only
Atterberg Limits (ASTM D4318)	3 (Total)	1 test/2,250 cy or less/site[(a)]	LL ≥ 22% PI ≥ 12%

USCS Classification (ASTM D2487)	3 (Total)	1 test/2,250 cy or less/site[a]	Info. Only
Standard Proctor Analysis 5-Point Curve (Minimum) (ASTM D698)	2 (Total)	1 test/5,000 cy or less/site[b]	Info. Only

[a] For each clay borrow site to be used, one test Grain Size and Hydrometer shall be performed and provided to engineer for each 4,500 cubic yards or less of clay to be obtained from each of the borrow sources. For each clay borrow site to be used, one Atterberg Limits and USCS Classification shall be performed and provided to engineer for each 2,250 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 Cap Placement

C.1.2 Clay Cap

Before the waste is placed, the existing surface will need to be scarified to a 1-foot depth and re-compacted to at least 95 percent of the Standard Proctor (ASTM D-698) value for the soil at a moisture content between 90 percent to 105 percent of the optimum moisture content. Clay cap can only be placed after testing confirms that the subgrade has achieved the density and moisture content requirements

After the grading is complete, the contractor shall place and compact approved clay cap material a maximum of 6-inch lifts for a total compacted thickness of 24 inches.

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 24 inches thick measured perpendicular to the surface.

Compact clay to a minimum of 95% 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 90 percent of the optimum moisture content as determined by ASTM D698.
- No wetter than 105 percent 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 cap 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 cap not meeting the project specifications until project specifications are met.

- The contractor shall not be compensated for removing, replacing and reworking clay cap not meeting the specification requirements.

C.1.4 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 cap.
- 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. foot of lift constructed, whichever is greater.
- HTCP certified person will perform all necessary sampling, testing, data analysis and documentation during all Clay Cap 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 cap 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.

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.

D Measurement

The department will measure Clay Cap 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.0035.0004	Clay Cap	CY

Payment is full compensation for furnishing, placing and compacting the clay cap on the surface of the Excavation, Hauling, and Reuse of Low-Level Petroleum-Contaminated Soil stock pile material.

352. Lighting Pull Boxes Wauwatosa 17-Inch x 30-Inch, Item SPV.0060.1010; Lighting Pull Boxes Wauwatosa 24-Inch x 36-Inch, Item SPV.0060.1011.

A Description

This special provision describes furnishing and installing polymer concrete electrical pull boxes at the locations shown on the plans in accordance to section 653 of the standard specification.

B Materials

Furnish precast polymer concrete (quazite) pull boxes of rectangular composite enclosure with nominal 17” wide x 30” long and 24” total depth, 24” wide x 36” long and 24” total depth, Style-PG, open bottom, # PG1730BA24 and # PG2436BA24 as manufactured by Hubbell Power Systems, Inc. or approved equal.

Cover shall be heavy duty, bolted cover with logo code 41 “STREET LIGHTING” #PG1730HA41 and PG2436HA41. The pull boxes shall be listed and labeled by (UL) or other Nationally Recognized Testing Laboratory.

C Construction
Conform to standard specification 673.3 and City of Wauwatosa standards. The pull boxes shall be installed 12-inches of crushed stone, set flush with grade and backfilled.

D Measurement
The Department will measure Lighting Pull Boxes Wauwatosa 17-Inch x 30-Inch and Lighting Pull Boxes Wauwatosa 24-Inch x 36-Inch as each individual lighting 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.0060.1010	Lighting Pull Boxes Wauwatosa 17-Inch x 30-Inch	EACH
SPV.0060.1011	Lighting Pull Boxes Wauwatosa 24-Inch x 36-Inch	EACH

Payment is full compensation for furnishing and installing all materials, including pull box, crushed aggregate, for excavation, backfill, for disposing of surplus material; and for furnishing all labor, tools, equipment and incidentals necessary to complete the contract work.

353. 23-FT Standard Concrete Light Poles and Arms, Item SPV.0060.1012

A Description
This special provision describes furnishing and installing light poles, mast arms, pole wiring/fusing and all miscellaneous hardware required to complete the installation of light poles, in accordance with Section 657 of the State Specs, as shown on the plans, and as hereinafter provided.

B Materials

Furnish and deliver light poles and arms conforming to the details as shown on the plans. The poles shall be sky gray colored, polished finished with acrylic seal.

All standards furnished shall be cast in metal molds true to design. Time of mixing shall be sufficient to ensure that all particles shall be thoroughly wetted. Concrete shall be placed in one continuous operation. When filled, the mold shall be rotated at a high speed to ensure a dense concrete by centrifugal force, and produce a cable raceway throughout the length of the standard not less than 2 ½” at the location of the hand holes and a minimum of 1 ½” at top of pole. The poles shall then be polished to a smooth ground finish. Reinforcing shall be in accordance with this specification to assure that no cracking shall occur during normal handling.

The span concrete poles are to be octagonal in shape and carry a 0.125 inch/foot taper, and have a sky gray finish. Shaft length is in general to be a minimum. of 27'-7" and a maximum of 28'-0". The pole is to be 23'-0" above grade. The butt diameter shall be 8" minimum and the top diameter shall be 5" minimum. The hand hole shall be 2 ½” x 12” minimum and 18" above grade. Two (2) cable entrances shall be provided on the pole at 90 degrees on either side of the hand hole. The cable entrances shall be 18" below grade and a minimum size of 2-1/4" x 8". The hand hole cover shall be flush with pole.

The pole shafts shall be fiber reinforced, air-entrained concrete, 5/8” minimum coverage over reinforcement (7,000 psi minimum).

Manufacturer's conformance to specifications shall be certified by an independent testing laboratory.

Poles shall be furnished with flush aluminum cover plate for hand hole and all other necessary hardware. This hardware shall include a removable metal cap which will protect the required open cable raceway at the top from the weather, nonferrous inserts for securing accessories such as cast aluminum pole cap, bracket brace, hand hole cover, etc., 6'-0" x 2" dia. mast arm of galvanized steel or aluminum with 1-1/4" slipfitter, stainless steel or silicone bronze nuts and bolts. Brackets for mast arm are to be one piece (no welds).

All poles shall be guaranteed against defect for a period of 5 yrs. If defects are discovered, poles shall be replaced on a two-for-one basis.

Pole Wiring/fusing: Conductors from the underground cable network shall be Type RHW-2/USE-2 (XLP) individual conductors. In each utilized phase conductor in the handhole, there shall be installed a 1-pole secondary inline 600 VAC fuse assembly as manufactured by BUSS Tron HEB series fuseholder with weatherproof boots, or approved equal, with a KTK fuse. Conductors shall have sufficient length to permit removal of the fuse assembly through the handhole of the pole.

C Construction
Install the poles as required by plans.

The poles shall be located 2'-6"' to center from the face of the curb. The pole shall be located so that the hand hole shall be on the sidewalk side. The pole shall have a back rake so that the sidewalk face of the pole is vertical. Compacted limestone 3/8" screened chips shall be provided around the base in accordance with the pole detail. The Contractor shall contact the pole supplier to coordinate delivery time and location. The handhole screws on the new poles are to be lubricated with a non-seizing compound.

Furnish and install all incidental items, including but not limited to nut covers, pole wiring/fusing, and grommets necessary to make the unit complete.

D Measurement
The Department will measure 23-FT Standard Concrete Light Poles and Arms, completed in accordance with the contract, 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.0060.1012	23-FT Standard Concrete Light Poles and Arms	EACH

Payment is full compensation for materials, including but not limited to poles, transformers, pole wiring/fusing, and hardware as necessary to completely install the pole and mast arm; for transportation, all labor, tools, equipment, materials, and incidentals necessary to complete the work.

354. Lighting Control Cabinet 240/480 - Wauwatosa, Item SPV.0060.1013

A Description
This special provision describes furnishing and installing a street lighting distribution center located as shown. The distribution center is to match the City of Wauwatosa standard distribution cabinets.

Work under this item consists of furnishing and installing 240/480-volt, 200-amp electrical service enclosure for power distribution. The distribution centers shall include but not limited to a NEMA 3R aluminum cabinet, panelboard, circuit breakers, lighting contactor with photoelectric control, wiring, all equipment and materials as shown in the plans.

The meter pedestal and concrete base will be paid under a separate bid item.

B Materials
The cabinet with all of its electrical components, wiring and parts shall be listed and labeled by Underwriters Laboratories (UL) or other Nationally Recognized Testing Laboratory as a complete assembled unit.

All materials furnished by the contractor for highway lighting installation under this contract are subject to approval by the engineer.

B.1 Enclosure
The enclosure shall be manufactured by Bison Pro Fab (800) 825-3805, APX Enclosures (717) 328-9399 or approved equal.

Control enclosure shall be NEMA-3R made from 12-gauge Type 304 stainless steel with #3 finish. Seams shall be continuously welded and ground smooth. All hardware shall be Type 304 stainless steel.

Enclosure shall be free standing with an overall height of 54-inches, a width of 48-inches and a depth of 24-inches. Enclosure shall have a 2-inch wide inside flange at the front, back and sides for anchoring to base. Side and back walls shall be stiffened with two vertical stainless steel equipment mounting rails per wall. The door frame shall be double flanged.

The cabinet top shall be sloped to drain and shall have a drip shield over door. Provide screened vent slots (1/8" x 1") under the cabinet overhang located in the top face above door opening.

Outer door shall be NEMA 3R, 12-gauge, with cellular neoprene gasket and a three position door stop rod. Door shall be hinged with a continuous 14-gauge stainless steel hinge secured with ¼-20 stainless steel carriage bolts.
Provide 3-point latching system with 3/4" diameter stainless steel padlocking handle. Also provide a Corbin No.2 deadbolt lock with two keys.

Enclosure shall have a 0.125-inch thick 5052-H32 aluminum mounting panel at back (interior) of enclosure.

Provide plastic print pocket attached to inside of door.

B.2 Main Disconnect
200A, 2-pole, 600VAC, Square-D #JGL26200 or approved equal. Provide a NEMA 4X stainless steel enclosure Model J250DS-SPLO. Unit shall lockable in the ON and OFF position. Mount unit on exterior of enclosure.

B.3 Contactor
200A, 2-pole, Mechanically Held, 120V Coil, Square-D #8903-SVO10-V02 or equal. Mount directly to back panel. Construct separate latching / unlatching circuit using 8-pin DPDT relay and socket (120V coil, 10A contacts) Square-D or equal.

B.4 Control Transformer
240VAC Primary, 120VAC Secondary, 1PH, 3KVA, Square-D #3S1F. Furnish Square-D #9080FB1211R or equal fuse block assembly with 15A fuse to protect line side of transformer.

B.5 Secondary Load Center
Provide circuit breaker enclosure for secondary circuits, Square-D #QO24L70S or equal with one 20A breaker (#QO120) for maintenance circuit, one 15A breaker (#QO115) for photocell circuit, and one #PK0GTA2 Ground Bar.

B.6 Photocell
The photocell shall be of the button type and installed in the sidewall of the control cabinet facing north. Apply silicon caulk to maintain the integrity of the enclosure. The photocell shall be rated for 120V, 1800W

with 30-60 second delay between “on-off” operations and be warranted for 5-years. Intermatic #K4021C or approved equal.

B.7 Hand-Off-Auto Switch
Square-D #9001-KS43B or equal switch body, #9001-KA1 contact block and #9001-KN760WP nameplate mounted in Hoffman #E-1PB or equal one hole box.

B.8 Other Devices
Furnish one 120V GFI duplex service receptacle in surface mounted box, and one 120V incandescent light fixture. Light fixture shall be wall mount type with gasketed vapor tight globe, wire guard, lamp, and on / off switch in surface mounted box. The components should be as shown below or approved equal.

Duplex GFCI Receptacle:	Hubbell #GFR52521A
4” SQ Deep Box:	Appleton #4SDEK or equal with #8362 Cover
Vapor Tight Fixture:	Epco #15000 with 15063 Wire Guard
4” Oct. Box:	Appleton #40D-1/2
Bulb:	GE 60W
Light Switch:	Hubbell #HBL1201
4” SQ Deep Box:	Appleton #4SDEK with #8361 Cover

Provide an insulated groundable neutral assembly, and service ground kit

B.9 Neutral Bar – 240V Circuits
1/4”x 4”x 18” Copper Bus Bar with Mounting Hardware, Square-D #SN225KA or equal. Provide copper mechanical lugs for all conductors to bus bar, Burndy #KA25 or equal.

B.10 Panelboard
Panelboard shall include 240/480 volt, 225A Square ‘D’ panel, 100A main circuit breaker, 30A branch circuit breakers and ground bar as follows or approved equal:

Panelboard:	(1) – Square-D 400A, 600V, I-Line, #HKA-225-S4 (Note: model based on need to maintain consistency with other distribution centers. Model is OEM)
Ground Bar:	(1) – Square-D #PK0GTA2
Main Breaker:	(1) – Square-D 2-Pole, 200A, 600V, I-Line, #JGA26200AB
Circuit Breakers:	Square D I-Line 30A #FA-14040A Square D I-Line 30A #FA-14040B

Provide fillers (Square-D #HNM1BL or #HNM4BL or equal) as required.

All Materials and Methods of Construction shall be in accordance with the applicable provisions of Section 656 of the WisDOT Standard Specifications.

C Construction
The Contractor shall be responsible for coordinating the timely installation of the service lateral by the utility. Provide ground rods as shown with a minimum of four at 5/8" Dia. by 10' long separated by not less than 10'-0" and ground conductor meeting Table 259-94 of the N.E.C. Connections between the ground conductor and ground rod shall be via an exothermic type connection process.

All wire in a conduit shall be pulled through at the same time. If required to pull wire through an occupied conduit, the existing wire shall first be removed and examined. If defective, the old wire shall be replaced for separate payment. If not defective, the old wire shall be pulled through with the new. Removal, inspection, and repulling of old wire is an incidental to the pulling of new wire. The cables shall be trained in straight horizontal and vertical directions and be parallel next to and adjacent to other cables whenever possible, using cable clamps attached with #10 screw to mounting panel, Panduit CCH series or approved equal. Adhesive type clamps are not allowed. All equipment shall be mounted to panel in enclosure unless otherwise indicated. Cabinet interior shall be cleaned of all construction debris prior to final acceptance.

Electrical permits and all applications will be required.

D Measurement
The department will measure by each Lighting Control Cabinet 240/480 – Wauwatosa as 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.0060.1013	Lighting Control Cabinet 240/480 - Wauwatosa	Each

Payment is full compensation for furnishing and installing all materials including electrical enclosure and all contents, construction and required line and load side connections; for all incidentals; and for all labor, tools, equipment, materials and incidentals necessary to complete the work.

355. Luminaires Utility LED A (30K), Item SPV.0060.1014; Luminaires Utility LED C (30K), Item SPV.0060.1015.

A Description
This special provision describes furnishing and installing Luminaires LED with correlated color temperature of 3000K (30K) and 70 CRI minimum according to standard spec 659 and hereinafter provided.

B Materials
Conform to standard spec 659.2.

C Construction
Conform to standard spec 659.3.

D Measurement
The Department will measure Luminaires Utility LED A (30K) and Luminaires Utility LED C (30K), 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.0060.1014	Luminaires Utility LED A (30K)	EACH
SPV.0060.1015	Luminaires Utility LED C (30K)	EACH

Basis of payment will be standard spec 659.5(2) and 659.5(3).

356. Polyethylene Duct 1 ¼-Inch, Item SPV.0090.1004.

A Description

This special provision describes furnishing and installing underground Cable-In-Duct, 2-conductors AWG No. 4 with AWG No. 8 Ground, including Cable Testing, and Erosion Control (as required). Cable in Duct shall be installed in earth, in conduit, in lighting poles and distribution centers, and at other locations as shown in the plans or required to suit field conditions.

All work under this item shall be completed in accordance to section 655 of the standard specifications except as hereinafter amended.

Conductors shall be installed after duct is installed and paid for separately.

B Materials
The duct shall comply with section 655 of the standard specifications.

C Construction
The duct shall be installed in accordance to section 655 of the standard specifications.

D Measurement
The Department will measure Polyethylene Duct 1 ¼-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.0090.1004	Polyethylene Duct 1 ¼-Inch	LF

Payment is full compensation for furnishing and installing materials, including duct, for excavating trenches, for placing duct; for backfilling; for restoring disturbed or damaged areas, including sodding; for making connections and testing installed cable system; for disposing of surplus material; and for furnishing all labor, tools, equipment and incidentals necessary to complete the contract work.

Schedule of Items
Attached, dated September 24, 2020, are the revised Schedule of Items Pages 1 – 66.

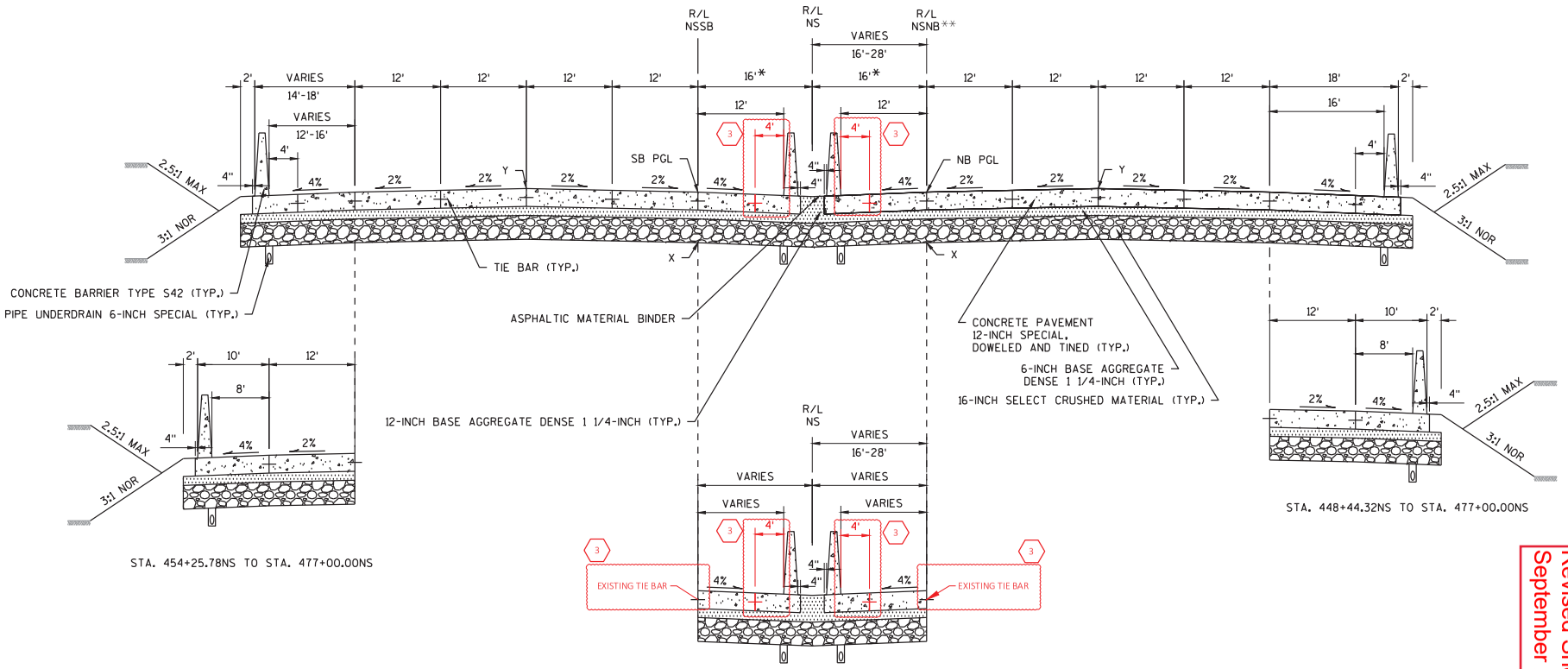
Plan Sheets
The following 8½ x 11-inch sheets are attached and made part of the plans for this proposal:

1060-33-84

Revised: 25-26, 60, 598-607, 990, 1009, 1011-1014, 1154-1161, 1984, 2180, 2197, 2344, 2348, 2349, 2352, 2353, 2358, 2359, 2360, 2367

Added: 54A-B, 60A, 545A, 1422A-B

END OF ADDENDUM



STA. 454+25.78NS TO STA. 477+00.00NS

STA. 370+89.93NS TO STA. 385+89.93NS

STA. 448+44.32NS TO STA. 477+00.00NS

*VARIES 16'-18' STA. 457+92.50NS TO 477+00.00INS

**R/L NSNB ONLY FROM STA. 414+87.93NS TO 427+03.31NS

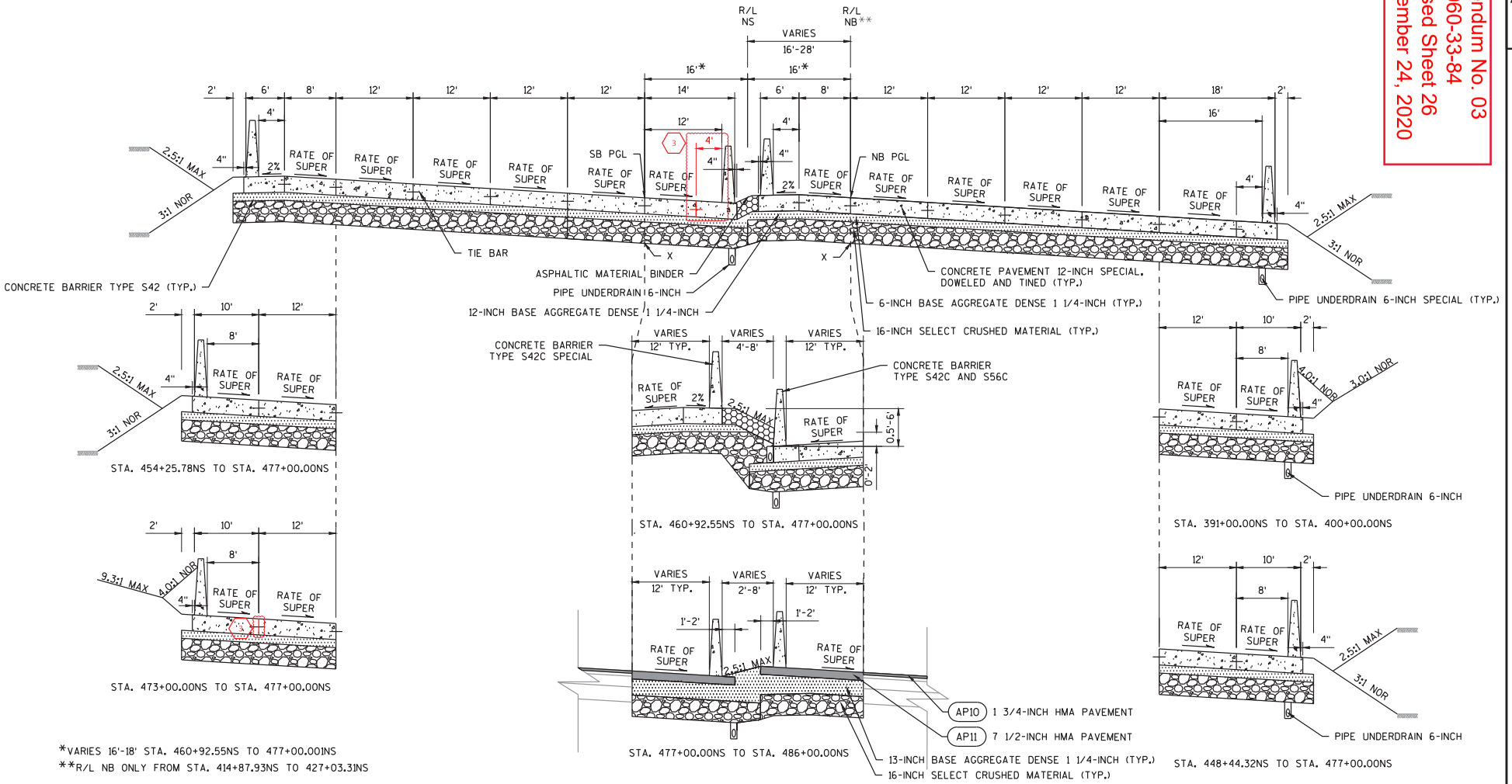
Addendum No. 03
ID 1060-33-84
Revised Sheet 25
September 24, 2020

TYPICAL FINISHED NORMAL CROWN SECTION
IH 41/USH 45
STA. 385+89.93NS TO STA. 477+00.00NS

NOTES:
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT
PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATIONS

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SHEET 25	E

Addendum No. 03
ID 1060-33-84
Revised Sheet 26
September 24, 2020



*VARIES 16'-18' STA. 460+92.55NS TO 477+00.00NS
**R/L NB ONLY FROM STA. 414+87.93NS TO 427+03.31NS

TYPICAL FINISHED SUPERELEVATED SECTION
IH 41/USH 45
STA. 385+89.93NS TO STA. 477+00.00NS

NOTES:
X = POINT REFERRED TO ON CROSS-SECTION
Y = CROWN POINT
PGL = POINT REFERRED TO ON PROFILE AND PIVOT POINT FOR SUPERELEVATIONS

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SHEET 26	E

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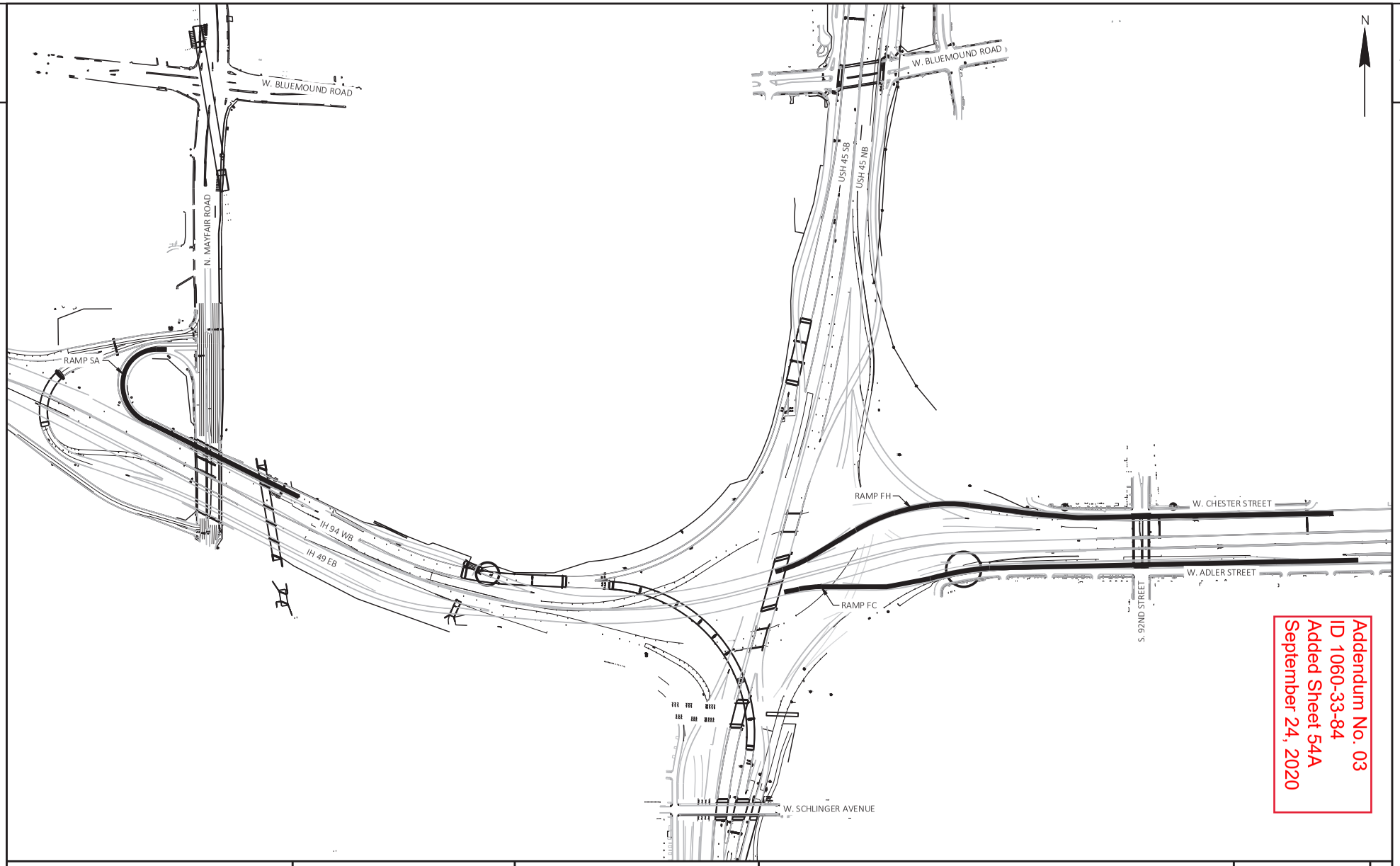
PLOT BY : MANYEN, WAYNE
PLOT NAME :
PLOT SCALE : 1 IN:15 FT
WISDOT/CADDS SHEET 42



Addendum No. 03
ID 1060-33-84
Added Sheet 54A
September 24, 2020

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	CONSTRUCTION DETAILS - CROSS-STITCHING LOCATIONS	SHEET 54A	E

FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\021000A_CD.DWG
LAYOUT NAME - 021006A_CD
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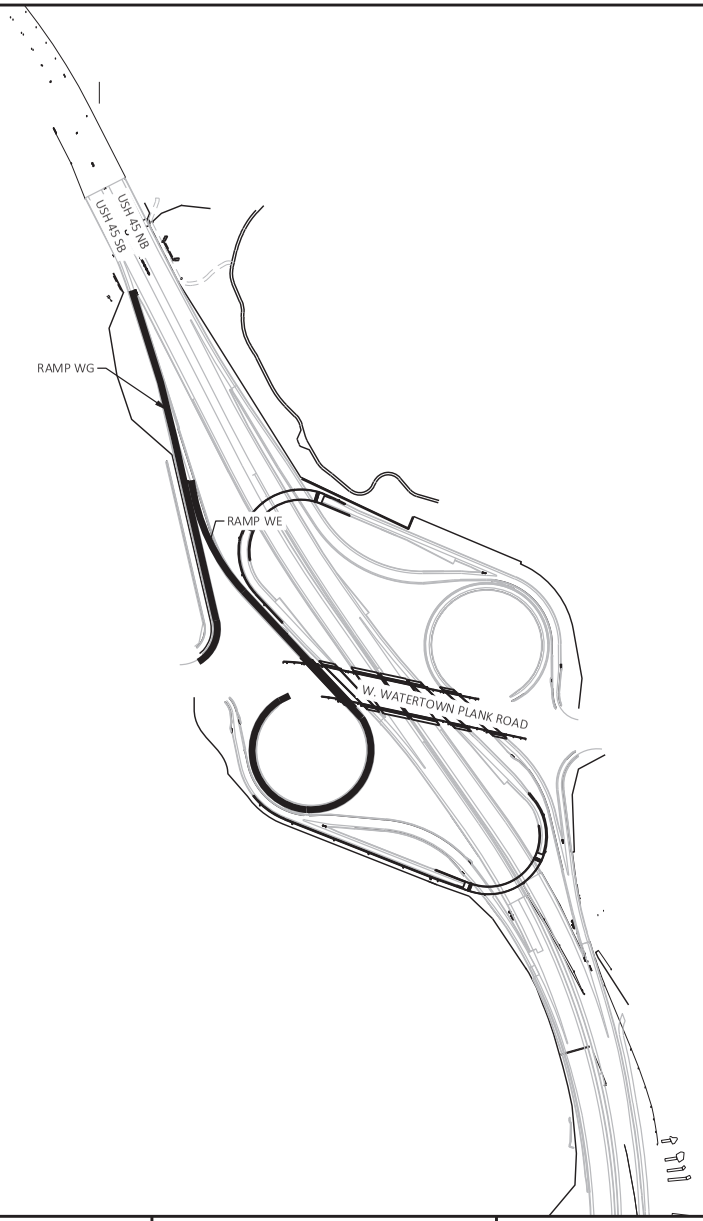
PLOT BY : MANYEN, WAYNE
PLOT NAME :
PLOT SCALE : 1 IN:500 FT



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Addendum No. 03
ID 1060-33-84
Added Sheet 54B
September 24, 2020

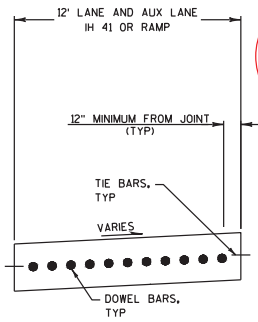
PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	CONSTRUCTION DETAILS - CROSS-STITCHING LOCATIONS	SHEET 54B	E

FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\021000A_CD.DWG
LAYOUT NAME - 021006B_CD

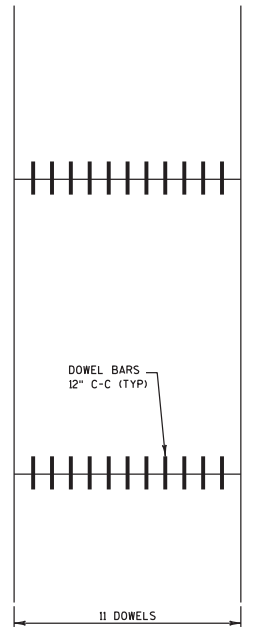
PLOT DATE : 9/23/2020 7:57 AM PLOT BY : MANYEN, WAYNE PLOT NAME : PLOT SCALE : 1 IN:500 FT

WISDOT/CADDS SHEET 42

Addendum No. 03
ID 1060-33-84
Revised Sheet 60
September 24, 2020

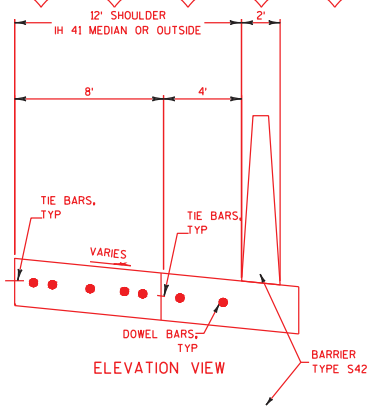


ELEVATION VIEW

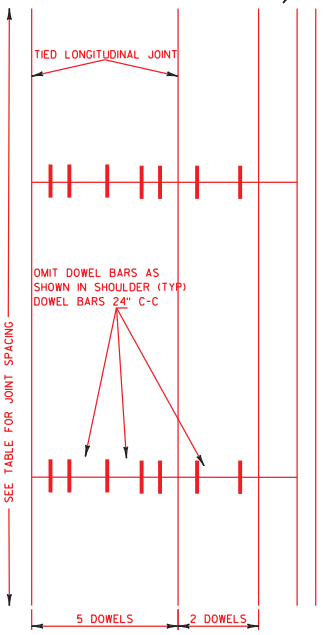


PLAN VIEW

HPC PAVEMENT JOINT DETAIL 12-FT LANE

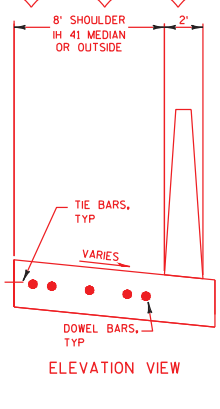


ELEVATION VIEW

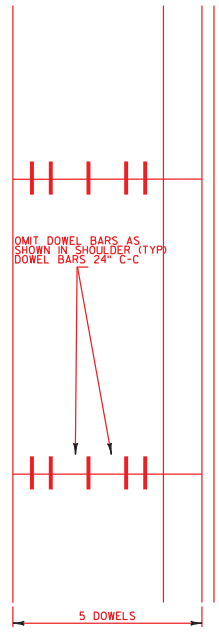


PLAN VIEW

HPC PAVEMENT JOINT DETAIL 12-FT SHOULDER

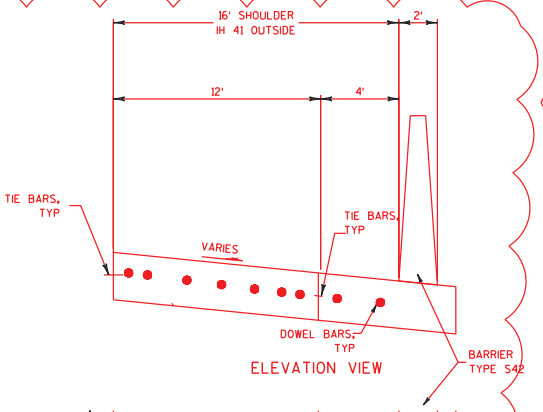


ELEVATION VIEW

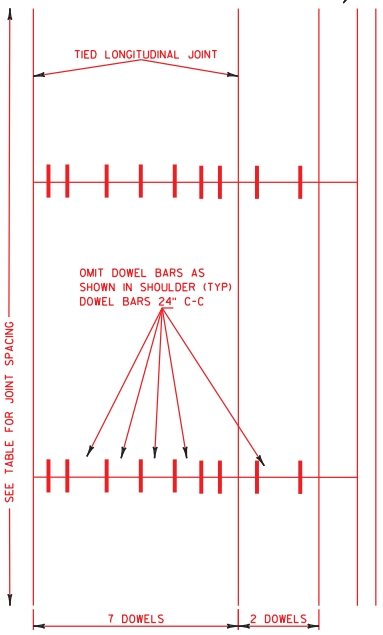


PLAN VIEW

HPC PAVEMENT JOINT DETAIL 8-FT SHOULDER



ELEVATION VIEW



PLAN VIEW

HPC PAVEMENT JOINT DETAIL 16-FT SHOULDER

NOTES

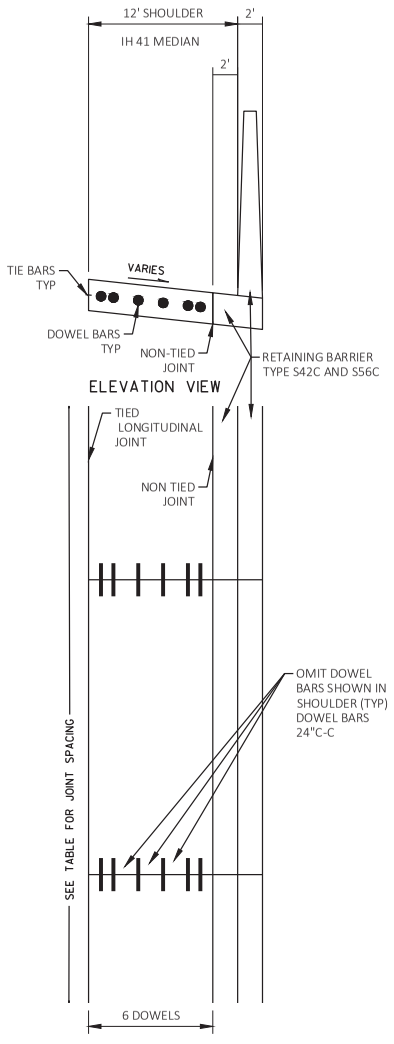
1) ALL DRIVING LANES AND AUX LANES TO HAVE DOWEL BARS SPACED 12 INCHES FROM CENTER TO CENTER.
2) DETAILS NOT SHOWN SHALL CONFORM TO STANDARD DETAIL DRAWINGS.
3) LOCATE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS 12 INCHES FROM THE EDGE OF PAVEMENT OR LONGITUDINAL JOINT.
4) TREAT SAWED SURFACES OF TRANSVERSE AND LONGITUDINAL JOINTS WITH SILANE SEALANT.

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

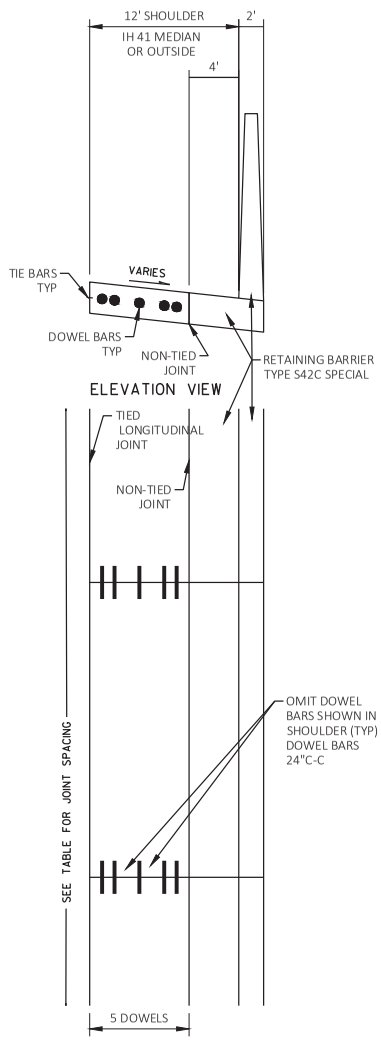
PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
12"	1 1/2"	15'

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	CONSTRUCTION DETAIL	SHEET 60	E

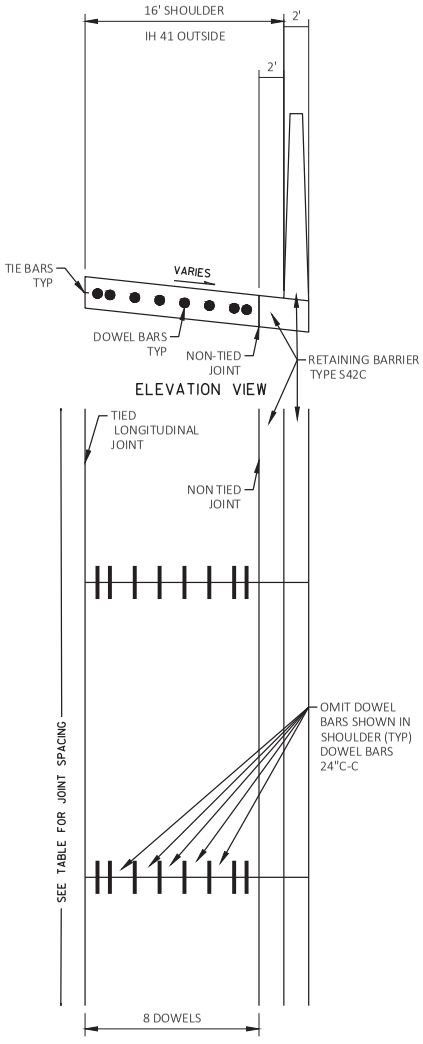
FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\021000_CD.DWG
LAYOUT NAME - 021011_CD
PLOT DATE : 9/24/2020 9:30 AM PLOT BY : MANYEN, WAYNE PLOT NAME : PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 42



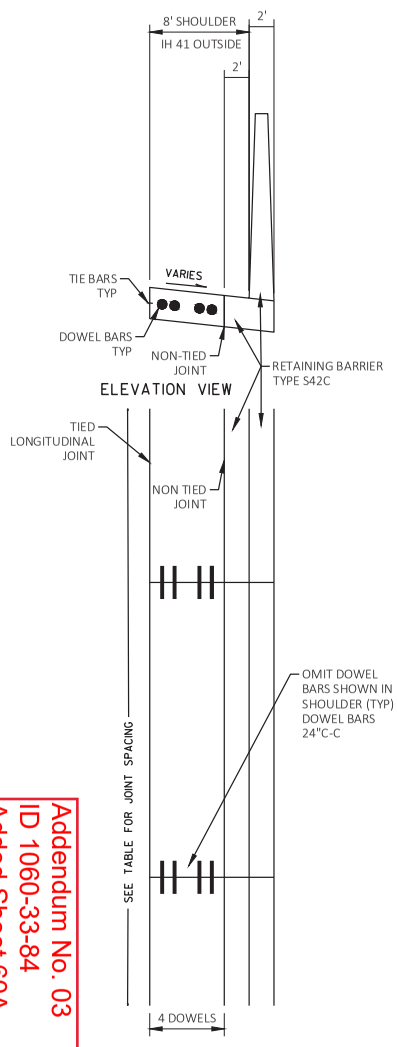
HPC PAVEMENT JOINT DETAIL
12-FT SHOULDER
(RETAINING BARRIER)



HPC PAVEMENT JOINT DETAIL
12-FT SHOULDER
(RETAINING BARRIER SPECIAL)



HPC PAVEMENT JOINT DETAIL
16-FT SHOULDER
(RETAINING BARRIER)

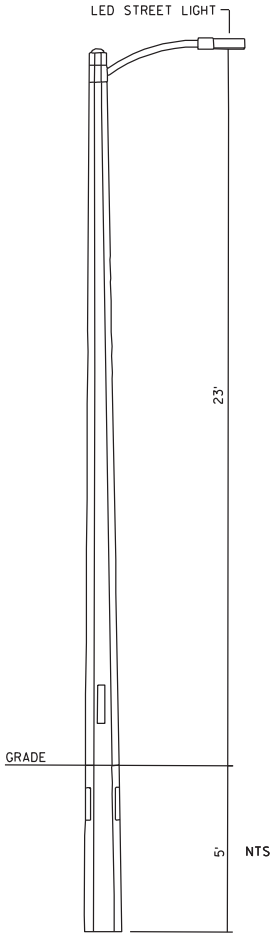


HPC PAVEMENT JOINT DETAIL
8-FT SHOULDER
(RETAINING BARRIER)

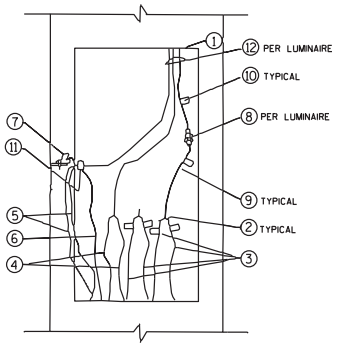
Addendum No. 03
ID 1060-33-84
Added Sheet 60A
September 24, 2020

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	CONSTRUCTION DETAIL	SHEET 60A	E

FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\021000_CD.DWG
LAYOUT NAME - 52 - 021000_CD - 021012_CD
PLOT DATE : 9/24/2020 9:46 AM PLOT BY : MANYEN, WAYNE PLOT NAME : PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 42

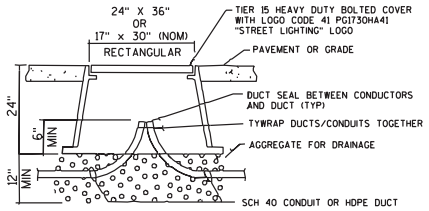


CONCRETE POLE DETAIL
NTS



1. HANDHOLE AND COVER
2. INSULATED SPLICE
3. UNGROUNDED CONDUCTORS
4. GROUNDED CONDUCTORS
5. SYSTEM GROUNDING CONDUCTORS
6. GROUND CONDUCTOR TO GROUND ROD
7. HANDHOLE GROUNDING LUG
8. INLINE FUSE ASSEMBLY W/5A KTK FUSE WITH WEATHERPROOF BOOTS
9. 12" PIGTAIL BETWEEN SPLICE AND FUSE ASSEMBLY
10. CIRCUIT TAG
11. REVERSIBLE PRESSURE OR COMPRESSION GROUNDING CONNECTION (NOT INSULATED)
12. 3*10 RHW/USE TO LUMINARE

STANDARD POLE WIRING DETAIL
NTS



NOTE:

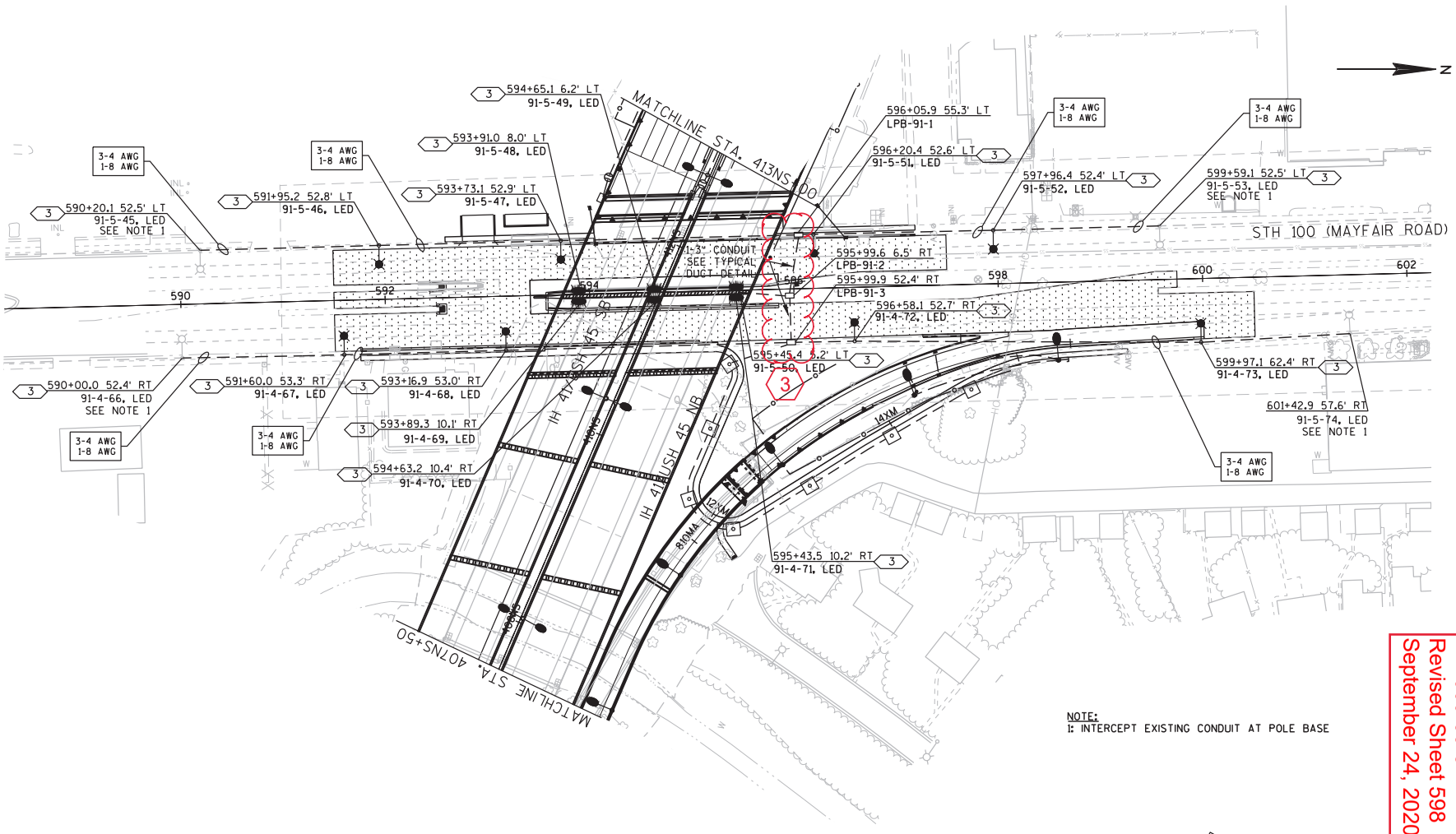
1. PULL BOX IS A UL(PG1730BA24 OR PG2436BA24) LISTED CONCRETE COMPOSITE

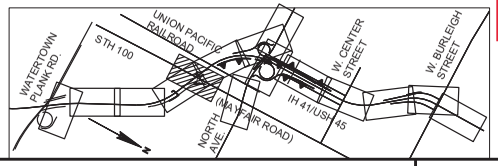
LIGHTING (STREET LIGHTING) PULL BOX
NTS

Addendum No. 03
ID 1060-33-84
Added Sheet 545A
September 24, 2020

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	LIGHTING DETAILS	SHEET 545A	E

FILE NAME : W:\PROJECTS\19064\DRAWINGS\CADD DRAWINGS\LIGHTING DETAILS.DWG
LAYOUT NAME - 01
PLOT DATE : 9/22/2020 5:34 PM
PLOT BY : WILLIAM NEAVE
PLOT NAME :
PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 42



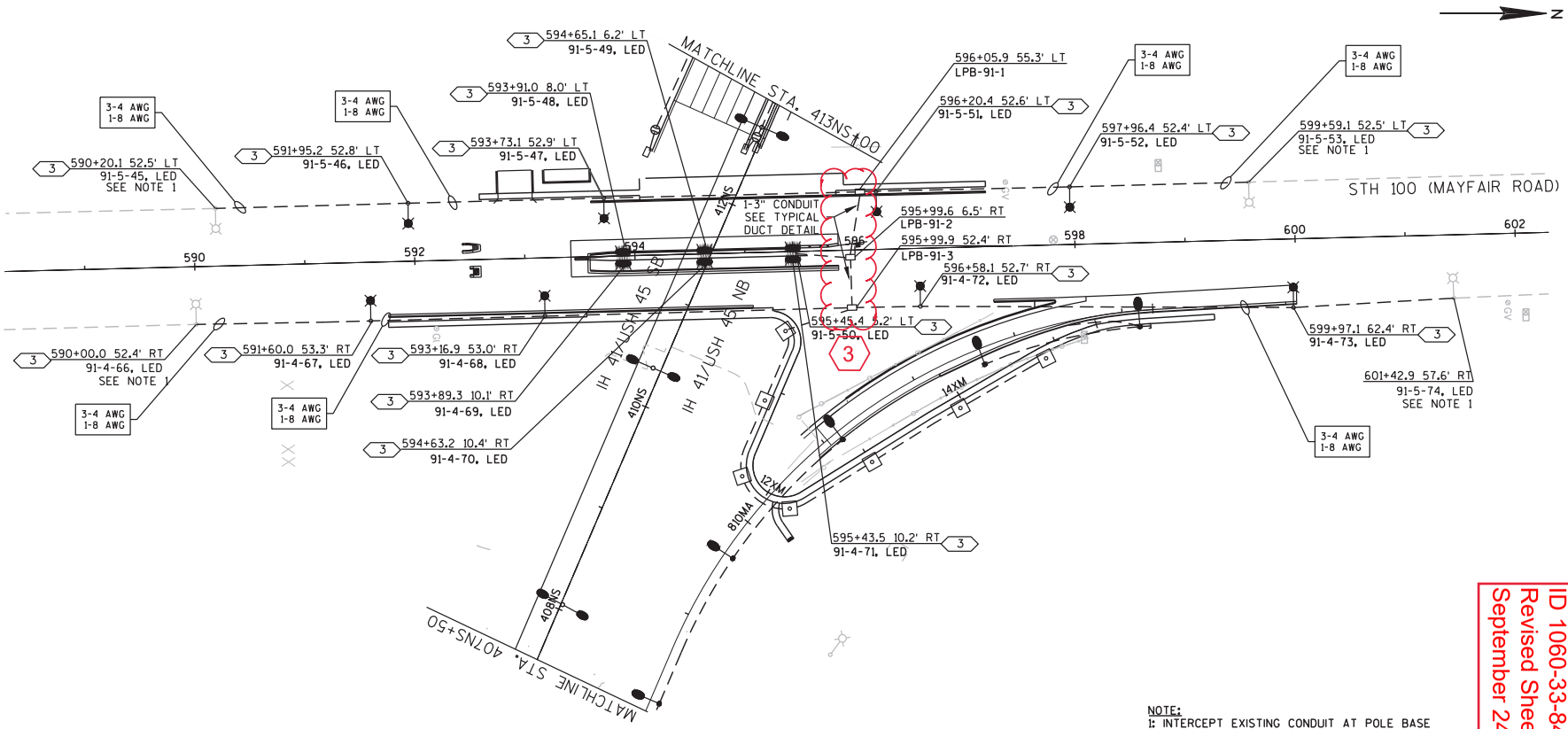


Addendum No. 03
ID 1060-33-84
Revised Sheet 598
September 24, 2020

SHEET 1 OF 2

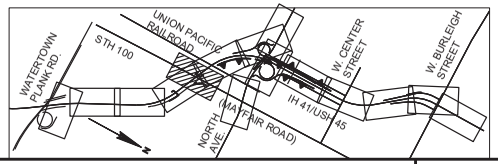
PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	LIGHTING PLANS - FINAL - LOCAL ROADWAY - MAYFAIR ROAD	SHEET 598	E

FILE NAME : W:\PROJECTS\19064\DRAWINGS\CADD DRAWINGS\023601_LP 2020-05-20 MAYFAIR RD.DWG
LAYOUT NAME - 023609_LP (2) ONLY
PLOT DATE : 9/23/2020 4:55 PM PLOT BY : WILLIAM NEAVE PLOT NAME : PLOT SCALE : 1" = 100'
WISDOT/CADDS SHEET 42



NOTE:
1: INTERCEPT EXISTING CONDUIT AT POLE BASE

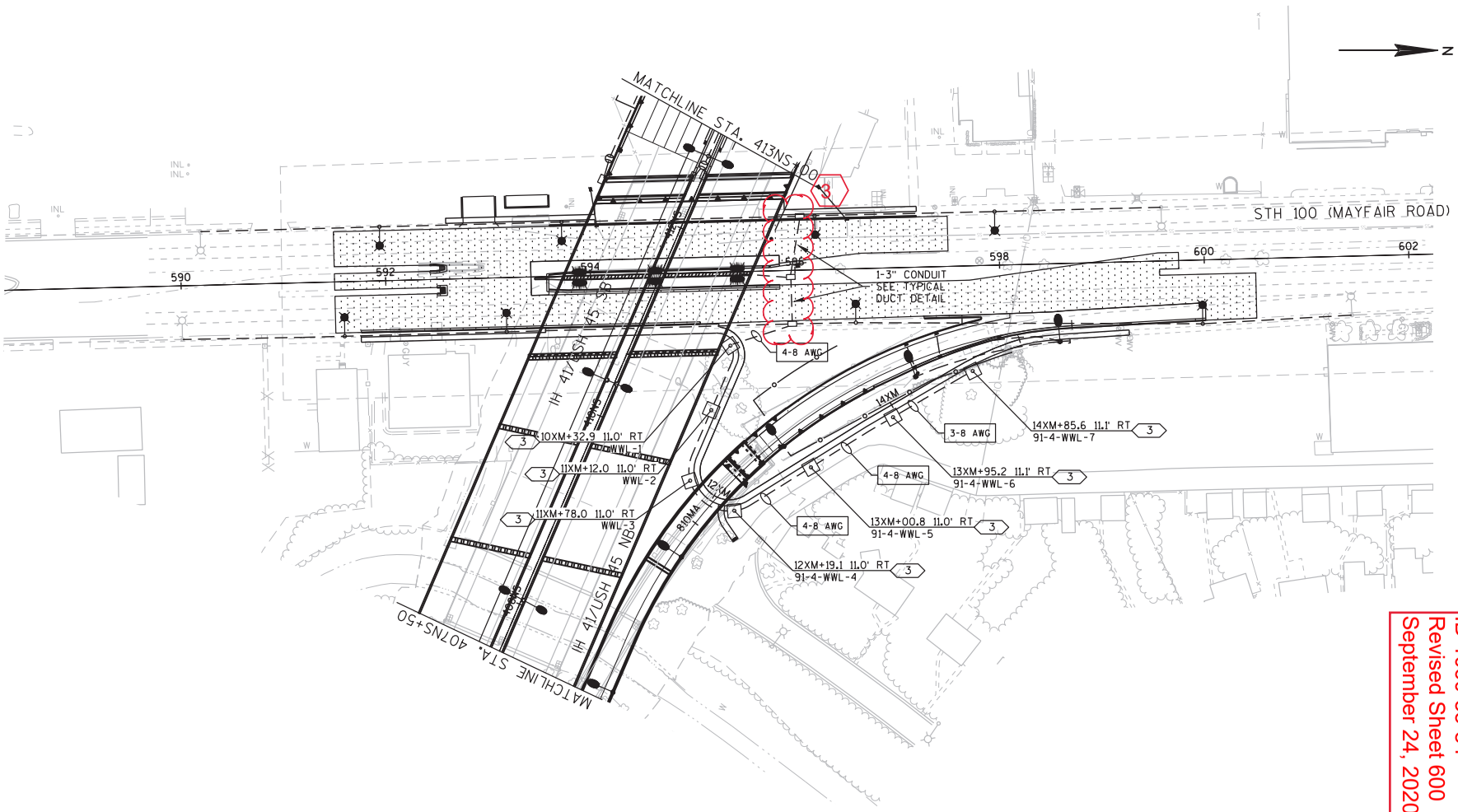
Addendum No. 03
ID 1060-33-84
Revised Sheet 599
September 24, 2020

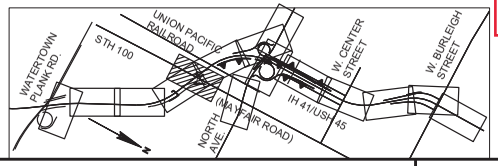


SHEET 2 OF 2

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	LIGHTING PLANS - SCHEMATICS - LOCAL ROADWAY - MAYFAIR ROAD	SHEET 599	E

FILE NAME : W:\PROJECTS\19064\DRAWINGS\CADD DRAWINGS\023601_LP 2020-05-20 MAYFAIR RD.DWG
LAYOUT NAME - 023610_LP (SCHEMATIC) (2) ONLY
PLOT DATE : 9/23/2020 4:56 PM PLOT BY : WILLIAM NEAVE PLOT NAME : PLOT SCALE : 1" = 100'
WISDOT/CADDS SHEET 42





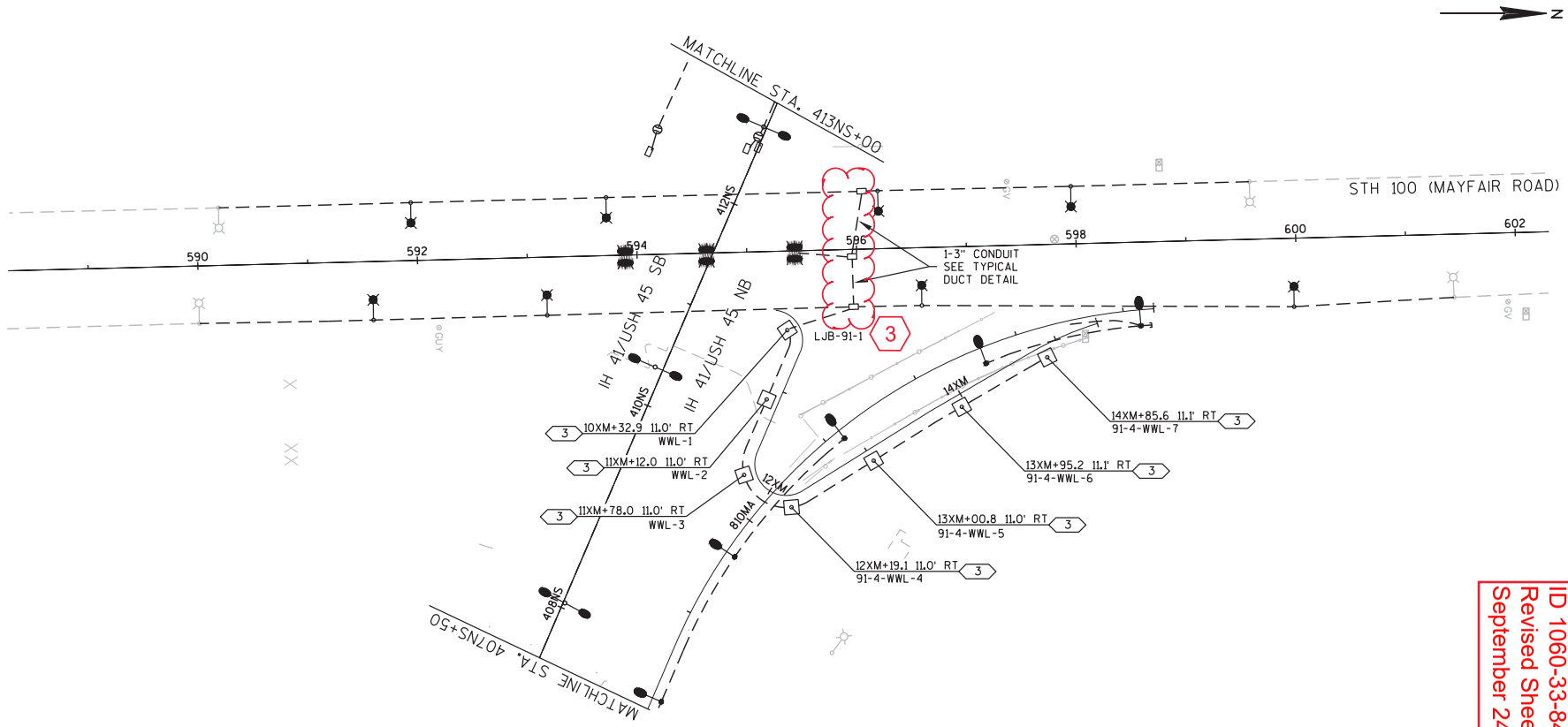
Addendum No. 03
ID 1060-33-84
Revised Sheet 600
September 24, 2020

SHEET 1 OF 2

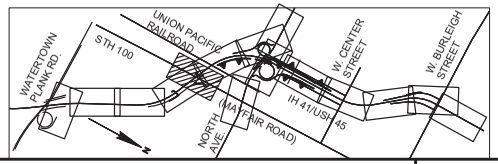
PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	LIGHTING PLANS - FINAL - LOCAL ROADWAY (DECORATIVE) - MAYFAIR ROAD	SHEET 600	E

FILE NAME : W:\PROJECTS\19064\DRAWINGS\CADD DRAWINGS\023601_LP 2020-05-20 MAYFAIR RD DECORATIVE.DWG
LAYOUT NAME - 023609_LP (2) ONLY
PLOT DATE : 9/23/2020 4:46 PM PLOT BY : WILLIAM NEAVE PLOT NAME : PLOT SCALE : 1" = 100'

WISDOT/CADDS SHEET 42



Addendum No. 03
ID 1060-33-84
Revised Sheet 601
September 24, 2020

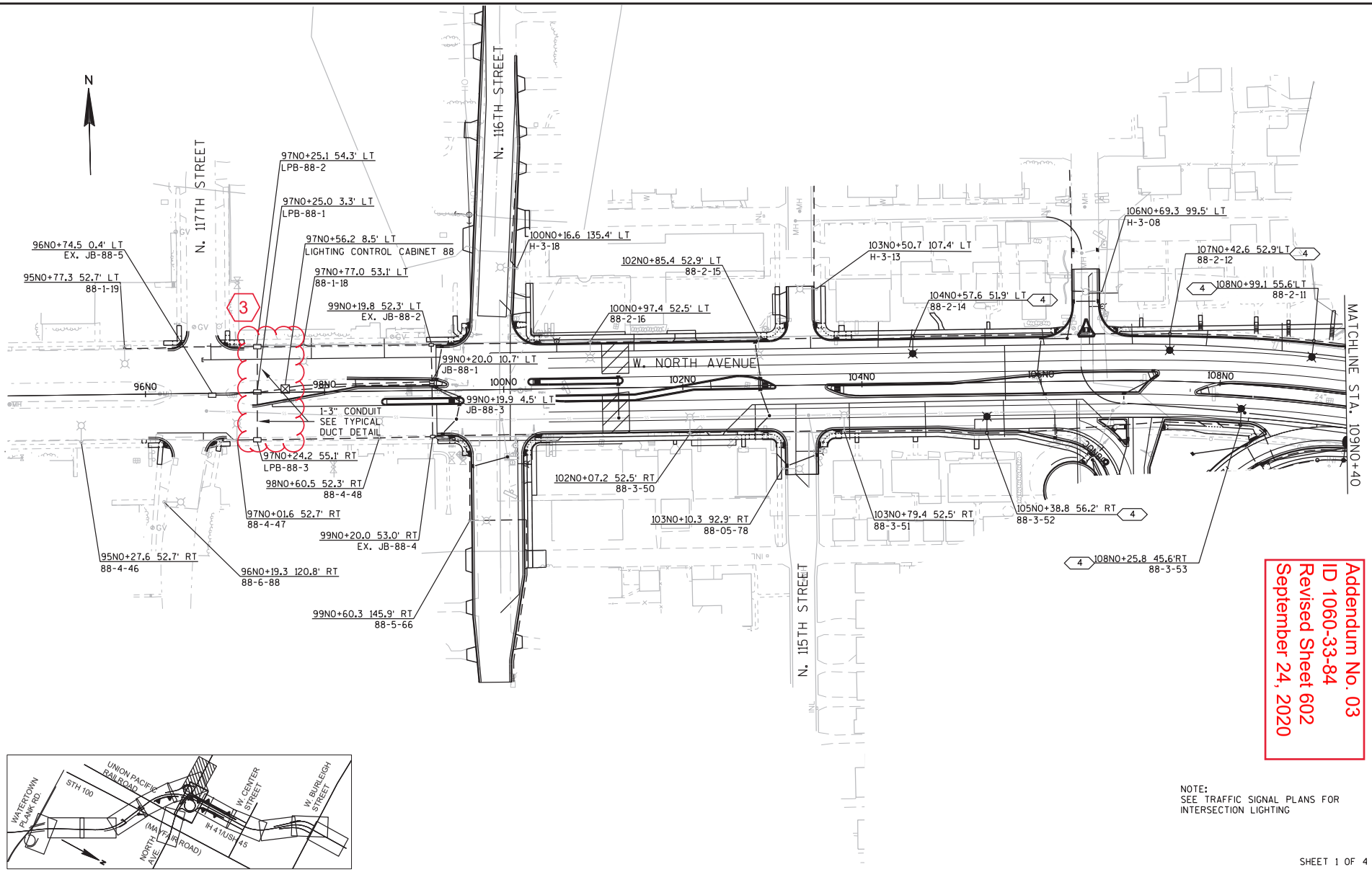


SHEET 2 OF 2

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	LIGHTING PLANS - SCHEMATIC - LOCAL ROADWAY (DECORATIVE) - MAYFAIR ROAD	SHEET 601	E

FILE NAME : W:\PROJECTS\19064\DRAWINGS\CADD DRAWINGS\023601_LP 2020-05-20 MAYFAIR RD DECORATIVE.DWG
LAYOUT NAME - 023610_LP (SCHEMATIC) (2) ONLY
PLOT DATE : 9/23/2020 4:46 PM PLOT BY : WILLIAM NEAVE PLOT NAME : PLOT SCALE : 1" = 100'

WISDOT/CADDS SHEET 42



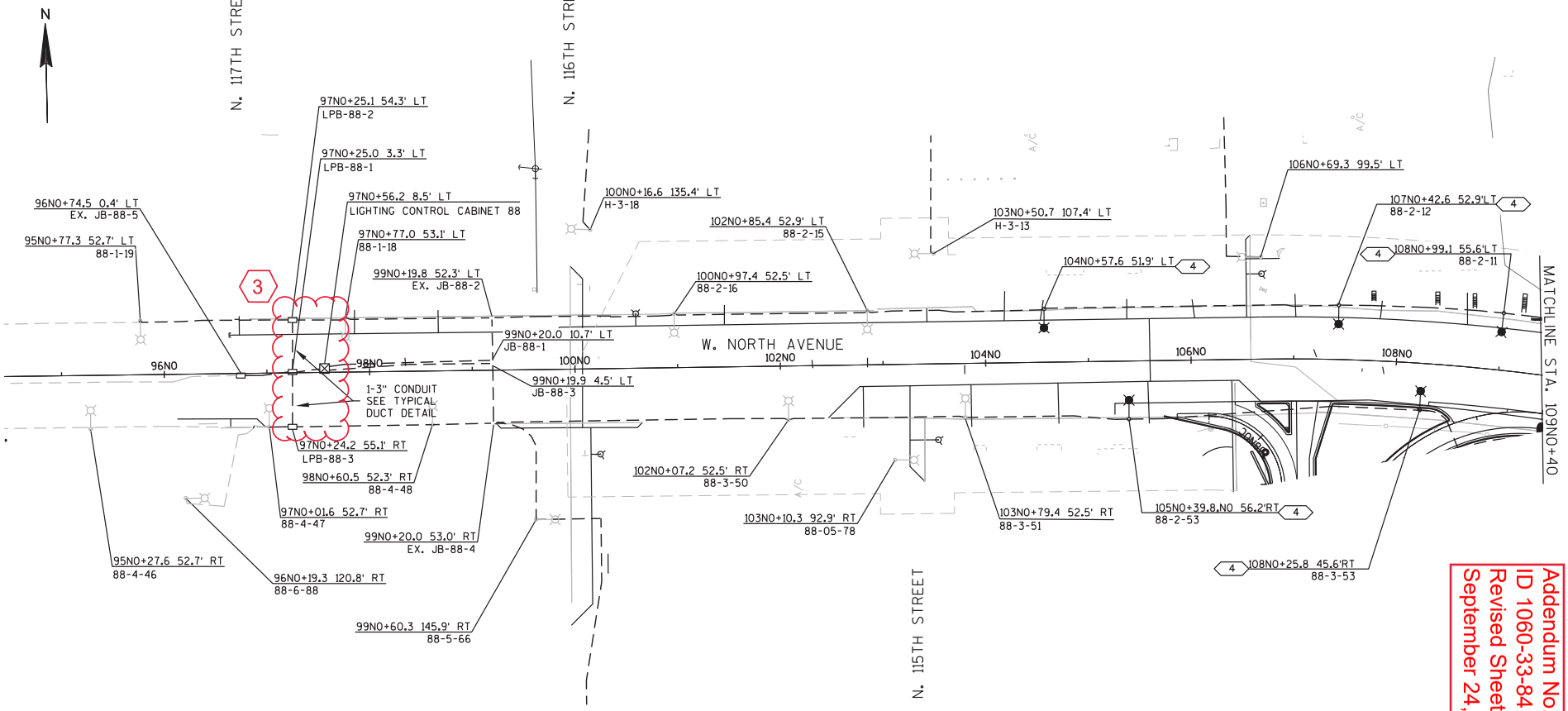
Addendum No. 03
ID 1060-33-84
Revised Sheet 602
September 24, 2020

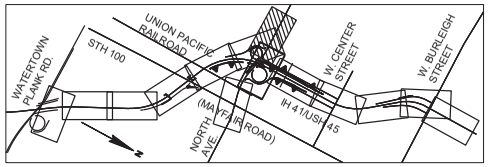
NOTE:
SEE TRAFFIC SIGNAL PLANS FOR INTERSECTION LIGHTING

SHEET 1 OF 4

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	LIGHTING PLANS - FINAL - LOCAL ROADWAY - NORTH AVENUE	SHEET 602	E

FILE NAME : W:\PROJECTS\19064\DRAWINGS\CADD DRAWINGS\023601_LP 2020-05-20 NORTH AVE.DWG
LAYOUT NAME - 023617_LP ONLY
PLOT DATE : 9/23/2020 5:27 PM PLOT BY : WILLIAM NEAVE PLOT NAME : PLOT SCALE : 1" = 100'
WISDOT/CADDS SHEET 42





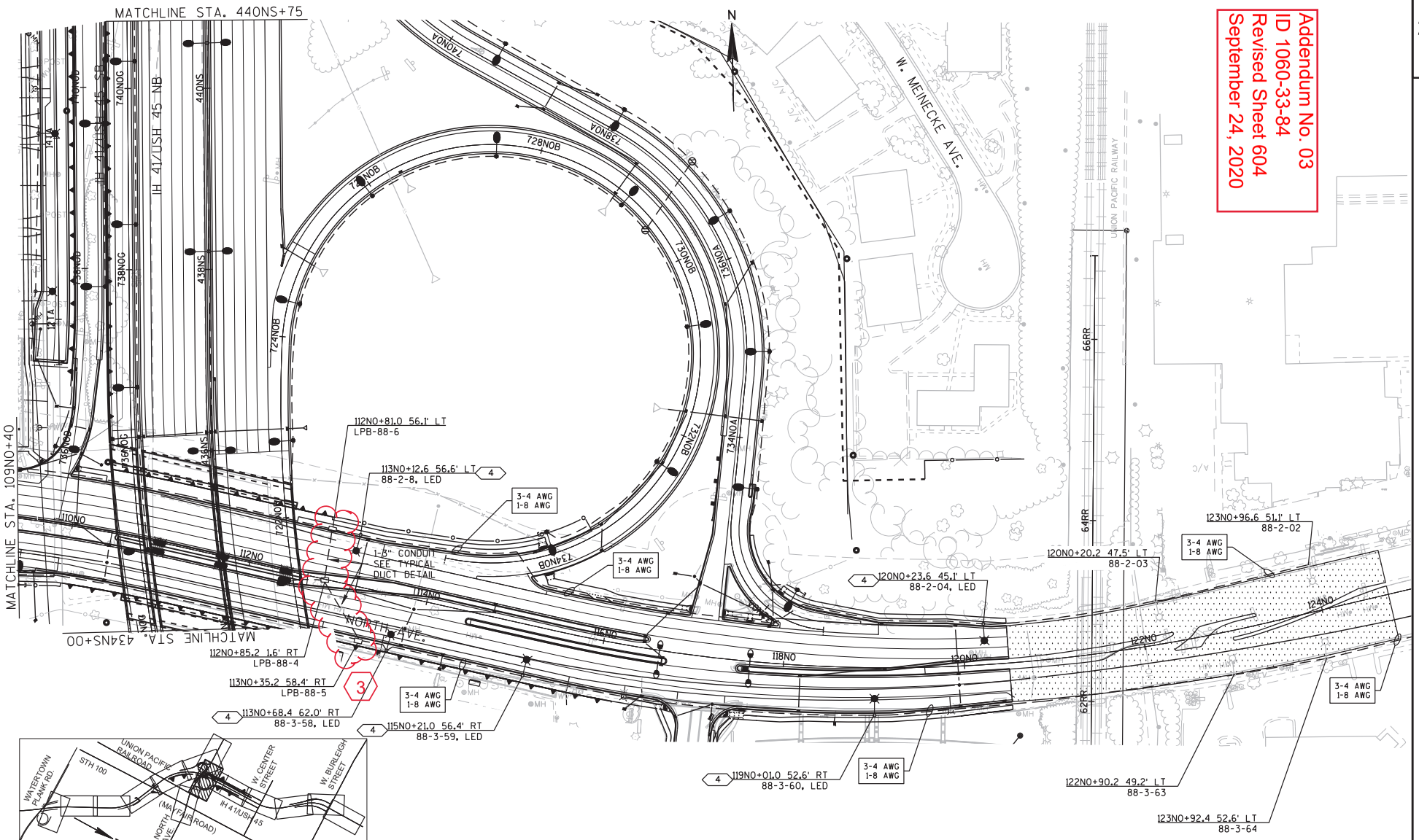
Addendum No. 03
ID 1060-33-84
Revised Sheet 603
September 24, 2020

SHEET 2 OF 4

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	LIGHTING PLANS - SCHEMATIC - LOCAL ROADWAY - NORTH AVENUE	SHEET 603	E

FILE NAME : W:\PROJECTS\19064\DRAWINGS\CADD DRAWINGS\023601_LP 2020-05-20 NORTH AVE.DWG
LAYOUT NAME - 023618_LP (SCHEMATIC) ONLY
PLOT DATE : 9/23/2020 5:27 PM PLOT BY : WILLIAM NEAVE PLOT NAME : PLOT SCALE : 1" = 100'
WISDOT/CADDS SHEET 42

Addendum No. 03
ID 1060-33-84
Revised Sheet 604
September 24, 2020

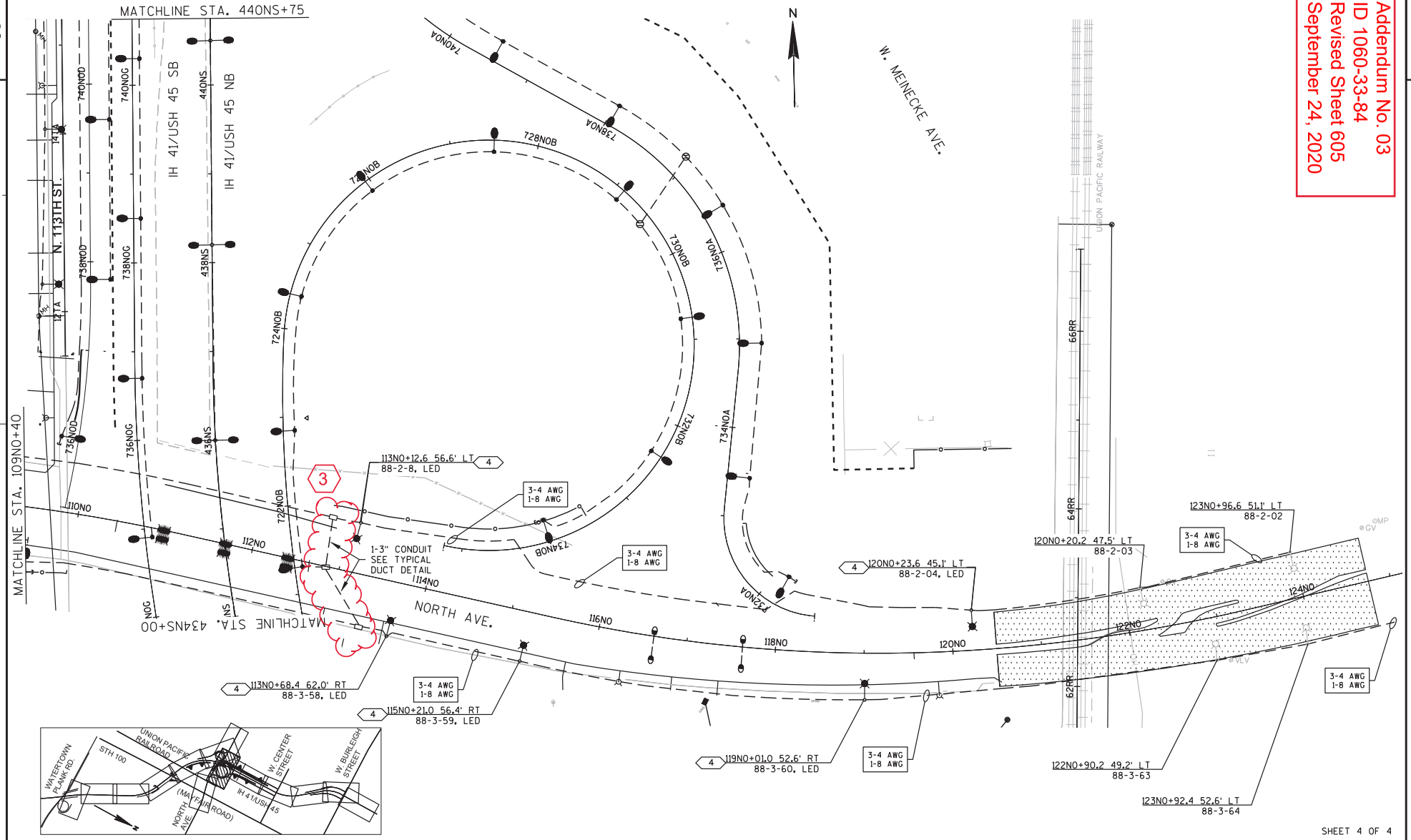


SHEET 3 OF 4

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	LIGHTING PLANS - FINAL - LOCAL ROADWAY - NORTH AVENUE	SHEET 604	E

FILE NAME : W:\PROJECTS\19064\DRAWINGS\CADD DRAWINGS\023601_LP 2020-05-20 NORTH AVE.DWG
LAYOUT NAME - 023623_LP (3) ONLY
PLOT DATE : 9/23/2020 5:28 PM PLOT BY : WILLIAM NEAVE PLOT NAME : PLOT SCALE : 1" = 100'

Addendum No. 03
ID 1060-33-84
Revised Sheet 605
September 24, 2020

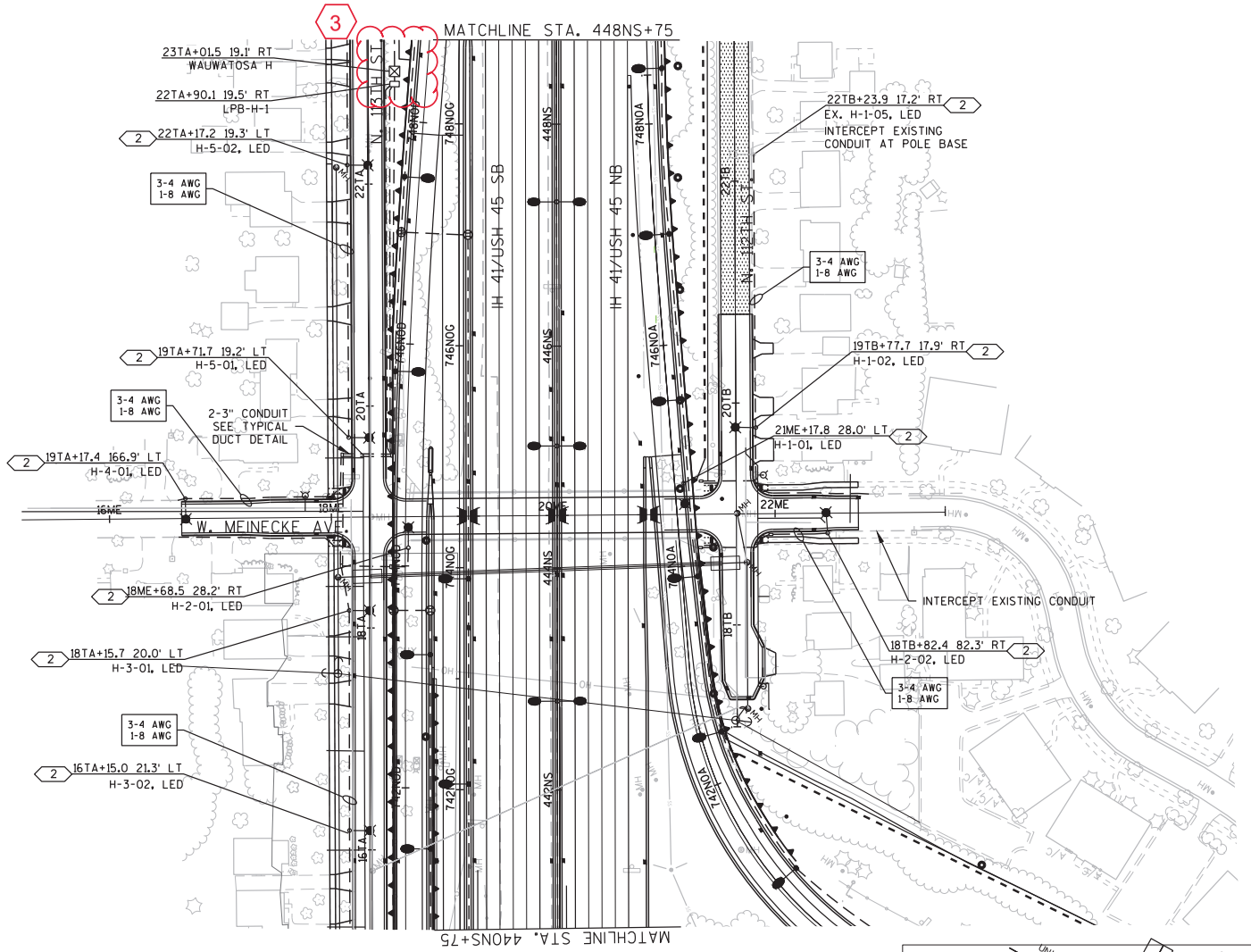


SHEET 4 OF 4

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	LIGHTING PLANS - SCHEMATIC - LOCAL ROADWAY - NORTH AVENUE	SHEET 605	E

FILE NAME : W:\PROJECTS\19064\DRAWINGS\CADD DRAWINGS\023601_LP 2020-05-20 NORTH AVE.DWG
LAYOUT NAME - 023624_LP (SCHEMATIC) (3) ONLY
PLOT DATE : 9/23/2020 5:28 PM PLOT BY : WILLIAM NEAVE PLOT NAME : PLOT SCALE : 1" = 100'

WISDOT/CADDS SHEET 42

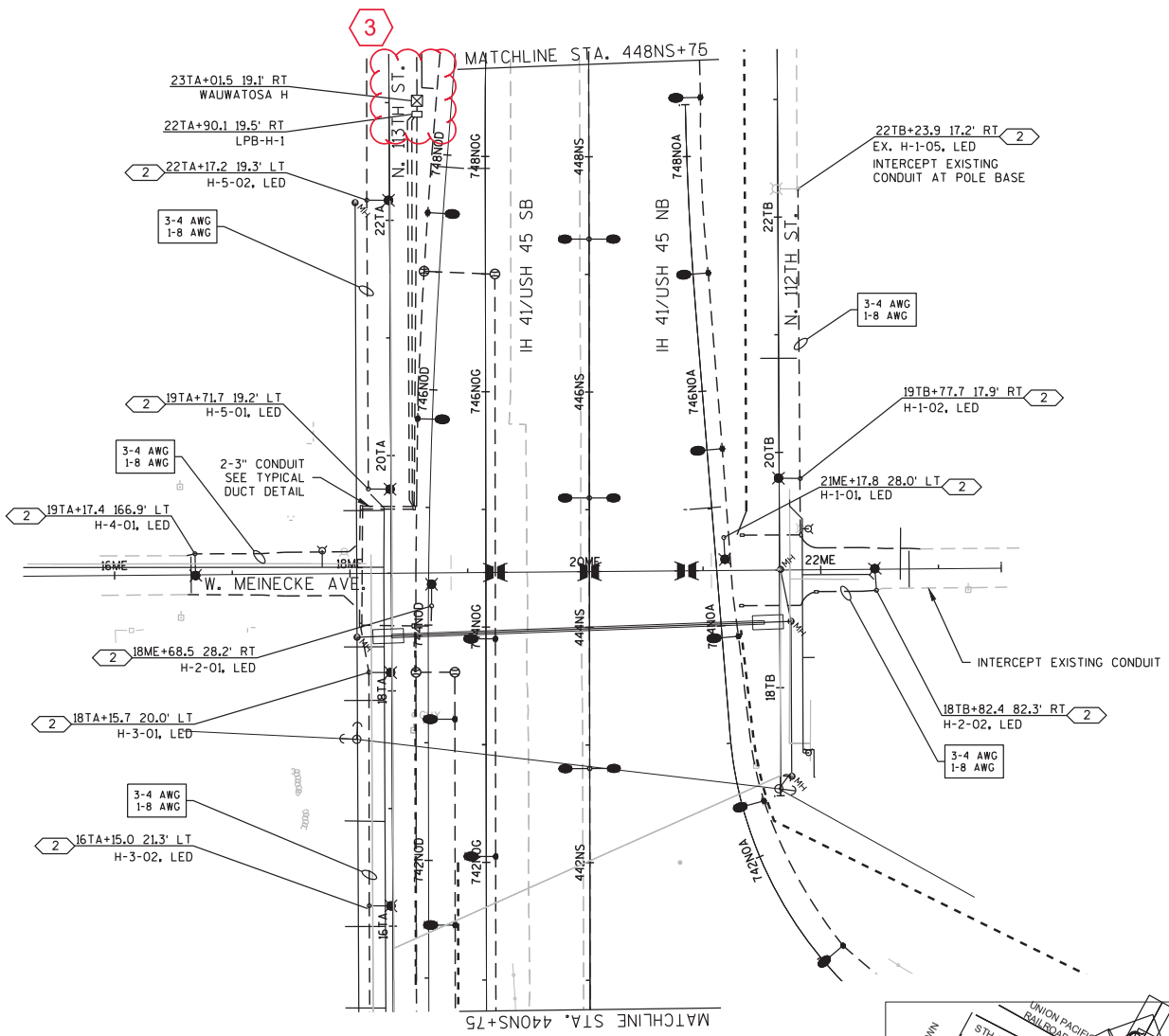


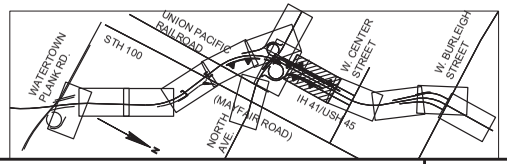
Addendum No. 03
ID 1060-33-84
Revised Sheet 606
September 24, 2020

SHEET 1 OF 2

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	LIGHTING PLANS - FINAL - LOCAL ROADWAY - MEINECKE AVENUE	SHEET 606	E

FILE NAME : W:\PROJECTS\19064\DRAWINGS\CADD DRAWINGS\023601_LP 2020-05-20 MEINECKE AVE.DWG
LAYOUT NAME - 023629_LP (3) ONLY
PLOT DATE : 9/23/2020 6:00 PM PLOT BY : WILLIAM NEAVE PLOT NAME : PLOT SCALE : 1" = 100'
WISDOT/CADDS SHEET 42





Addendum No. 03
ID 1060-33-84
Revised Sheet 607
September 24, 2020

SHEET 2 OF 2

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	LIGHTING PLANS - SCHEMATIC - LOCAL ROADWAY - MEINECKE AVENUE	SHEET 607	E

FILE NAME : W:\PROJECTS\19064\DRAWINGS\CADD DRAWINGS\023601_LP 2020-05-20 MEINECKE AVE.DWG
LAYOUT NAME - 023630_LP (SCHEMATIC) (3) ONLY
PLOT DATE : 9/23/2020 6:01 PM PLOT BY : WILLIAM NEAVE PLOT NAME : PLOT SCALE : 1" = 100'

Addendum No. 03
ID 1060-33-84
Revised Sheet 990
September 24, 2020

3

DUST CONTROL SURFACE TREATMENT

STAGE	LOCATION	623.0200 DUST CONTROL SURFACE TREATMENT SY
ALL	PROJECT	243
	TOTAL	243

DELINEATOR REFLECTORS

STAGE	LOCATION	633.1000 DELINEATORS BARRIER WALL EACH
ALL	PROJECT	500
	PROJECT ID 1060-33-84 TOTAL	500

WATER

STAGE	LOCATION	624.0100 WATER MGAL
ALL	PROJECT-BASE AGGREGATE	243
	PROJECT-EXCAVATION	1,985
	TOTAL	2,228

3

CPM SCHEDULE ITEMS

STAGE	LOCATION	SPV.0060.0601 BASELINE CPM PROGRESS SCHEDULE EACH	SPV.0060.0602 MONTHLY CPM PROGRESS SCHEDULE UPDATES EACH
ALL	**PROJECT 1060-33-84**	1	32
	TOTAL	1	32

MAINTAIN AND SALVAGE CRASH CUSHIONS TEMPORARY

CATEGORY	STATION	LOCATION	SPV.0060.0165 MAINTAIN AND SALVAGE CRASH CUSHIONS TEMPORARY LEFT IN PLACE EACH
	PROJECT ID 1060-33-84		
1000	388+90 NS	LT	1
	453+90 NS	RT	1
	482+00 NS	LT	1
	PROJECT ID 1060-33-84 TOTAL		3

SALVAGE BARRIER FOR COUNTIES

COUNTY	SPV.0090.0600 SALVAGE TEMPORARY PRECAST CONCRETE BARRIER LEFT IN PLACE LF
PROJECT ID 1060-33-84	
COUNTY	
MILWAUKEE	300
RACINE	462.5
WALWORTH	250
WASHINGTON	387.5
PROJECT ID 1060-33-84 TOTAL	1,400.0

3

*ADDITIONAL QUANTITIES FOUND ELSEWHERE CATEGORY 1000 UNLESS OTHERWISE NOTED

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	MISCELLANEOUS QUANTITIES	SHEET: 990	E

FILE NAME : _____ PLOT DATE : _____ PLOT BY : _____ PLOT NAME : _____ PLOT SCALE : 1:1

PIPE UNDERDRAIN

STAGE	ROADWAY	STATION	TO	STATION	OFFSET	612.0206 PIPE UNDERDRAIN UNPERFORATED 6-INCH LF	612.0406 PIPE UNDERDRAIN WRAPPED 6-INCH LF	612.0806 APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE 6-INCH EACH	* 633.5200 MARKERS CULVERT END EACH	* SPV.0060.8015 PIPE CONNECTION TO EXISTING STRUCTURE EACH	* SPV.0090.0126 PIPE UNDERDRAIN 6-INCH SPECIAL LF	SPV.0090.0127 PIPE UNDERDRAIN 10-INCH SPECIAL LF
ALL	**PROJECT ID 1060-33-84**											
	CORE SYSTEM RAMPS											
	RAMP CS											
		573+00CS	-	575+13CS	LT/RT	--	639	--	--	2	--	--
		578+54CS	-	579+46CS	LT/RT	--	181	--	--	1	--	--
	RAMP WS											
		588+90WS	-	591+29WS	LT/RT	--	569	--	--	3	--	--
	MAINLINE											
		400+10NS	-	403+94NS	RT	--	--	--	--	--	417	--
		402+65NS	-	403+53NS	LT	--	--	--	--	--	88	--
		411+99NS	-	413.32NS	LT	--	--	--	--	--	136	--
		412+76NS	-	415+57NS	RT	--	--	--	--	--	336	--
		430+94NS	-	433.70NS	RT	--	--	--	--	--	534	--
		435+89NS	-	443.11NS	LT	25	--	1	1	--	755	--
	RAMP NOA											
		741+00NOA	-	452+60NS	RT	25	--	1	1	--	1178	--
	RAMP BUC											
		782+01BUC	-	786+95BUC	LT	25	--	1	1	--	492	--
	UPRR											
	UPRR WEST TRACK											
		22+45RDW	-	24+10RDW	LT	--	--	--	--	--	--	165
	PROJECT ID 1060-33-84 TOTAL					75	1,389	3	3	6	3,936	165

CROSS STITCHING LONGITUDINAL JOINTS AND CRACKS

STAGE	LOCATION	SPV.0060.0130 CROSS STITCHING LONGITUDINAL JOINTS AND CRACKS EACH	COMMENTS
ALL	RAMP FC	145	SEE NOTE (1)
	RAMP FH	65	SEE NOTE (1)
	RAMP SA	25	SEE NOTE (1)
	RAMP WG	315	SEE NOTE (1)
	RAMP WE	120	SEE NOTE (1)
	UNDISTRIBUTED	30	SEE NOTE (1)
	PROJECT ID 1060-33-84 TOTAL	700	

3

NOTES:

(1) SERVICE RAMP LOCATIONS ARE WITHIN THE LOCATIONS OF CROSS STITICHING TO BE DETERMINED BY THE ENGINEER

ASPHALTIC MATERIAL BINDER

STAGE	STATION	TO	STATION	SPV.0180.0604 ASPHALTIC MATERIAL BINDER SY
	PROJECT ID 1060-33-84			
5	372+00NS	-	486+00NS	8,074
	PROJECT ID 1060-33-84 TOTAL			8,074

Addendum No. 03
ID 1060-33-84
Revised Sheet 1009
September 24, 2020

*ADDITIONAL QUANTITIES FOUND ELSEWHERE
CATEGORY 1000 UNLESS OTHERWISE NOTED

3

FIELD OFFICE

PROJECT	SPV.0135.0100 FIELD OFFICE SPECIAL MONTH
PROJECT ID 1060-33-84	
	45
PROJECT ID 1060-33-84 TOTAL	45

FINISHING ROADWAY

STAGE	LOCATION	213.0100.0001 FINISHING ROADWAY 1060-33-84 EACH
ALL	**PROJECT**	1
	TOTAL	1

Addendum No. 03
ID 1060-33-84
Revised Sheet 1011
September 24, 2020

3

CRACK AND DAMAGE SURVEY

LOCATION	SPV.0060.0150 CRACK AND DAMAGE SURVEY SINGLE OR DOUBLE UNIT RESIDENTIAL EACH	SPV.0060.0155 CRACK AND DAMAGE SURVEY MULTI-UNIT RESIDENTIAL EACH	SPV.0060.0160 CRACK AND DAMAGE SURVEY COMMERCIAL PUBLIC OR INDUSTRIAL EACH
PROJECT	43	5	5
PROJECT ID 1060-33-84 TOTAL	43	5	5

CLAY CAP

3

LOCATION	STATION	TO	STATION	OFFSET	SPV.0035.0004 CLAY CAP CY	REMARKS
PROJECT ID 1060-33-84						
RAMPS						
NOA	738+00NOA	-	744+00NOA	LT	3,000	FINAL CAP
NOC	728+00NOC	-	733+00NOC	RT	3,300	FINAL CAP
PROJECT 1060-33-84 TOTAL					6,300	

*ADDITIONAL QUANTITIES FOUND ELSEWHERE
CATEGORY 1000 UNLESS OTHERWISE NOTED

Addendum No. 03
ID 1060-33-84
Revised Sheet 1012
September 24, 2020

3

EARTH WORK SUMMARY

Division	From/To Station	Location	A Total Cut Volume (CY)	B 205.0100 Excavation Common (CY) (1)	C 205.0501.S.0001 Excavation, Hauling, and Disposal of Petroleum Contaminated Soil (TON)	D SPV. 0035.0003 Excavation, Hauling, and Reuse of Low-Level Contaminated Soil (CY) (7)	E SPV. 0195.0004 Excavation, Hauling, and Disposal of Low-Level Contaminated Soil (TON) TON = CY*1.7	F SPV. 0035.0001 EBS Excavation (CY) (2) (5)	Available Material	SPV. 0035.0002 EBS Backfill (CY) (2) Factor 1.00	209.1100 Backfill Granular Grade 1 (CY) (8)	SPV. 0195.0001 Fly Ash Stabilization (6)	Unexpanded Fill (3)	Expanded Fill (4) Factor 1.10	Waste (5)
		MAINLINE													
1	386+00NS TO 398+00NS	SB	14,635	14,635	0	0	0	483	14,635	483	--	43	279	307	14,328
	413+35NS TO 434+00NS	TEMP	12,305	12,305	0	0	0	951	12,305	951	--	84	713	784	11,521
	436+00NS TO 482+00NS	WIDENING	34,981	34,981	0	0	0	1,752	34,981	1752	--	154	5,171	5,688	29,293
		MAINLINE													
	385+00NS TO 403+00NS	TEMP MEDIAN	2,755	2,755	0	0	0	536	2,755	536	--	47	99	109	2,646
	418+00NS TO 432+50NS	TEMP MEDIAN	4,592	4,592	0	0	0	534	4,592	534	--	47	0	0	4,592
	442+00NS TO 447+50NS	TEMP MEDIAN	1,110	1,110	0	0	0	144	1,110	144	--	13	0	0	1,110
	474+00NS TO 477+00NS	TEMP MEDIAN	4,463	4,463	0	0	0	653	4,463	653	--	57	60	66	4,397
		LOCAL											3		
	97+19 TO 100+00	W. NORTH AVE	2,002	2,002	0	0	0	624	2,002	624	--	--	16	17	1,985
	100+50 TO 120+50	W. NORTH AVE EB	991	531	782	0	0	4,444	531	4,444	--	--	1	1	530
	100+50 TO 120+50	W. NORTH AVE WB	21,001	13,946	0	1,950	8,679	4,444	15,896	4,444	--	--	19	21	15,875
	88+75 TO 89+00	PRIVATE DRIVE	89	89	0	0	0	278	89	278	--	--	0	0	89
	22+00 TO 23+50	W. MEINECKE AVE	626	626	0	0	0	333	626	333	--	--	28	31	595
	17+50 TO 30+26	112TH ST	3,782	3,782	0	0	0	2,836	3,782	2,836	--	--	649	714	3,068
	16+80 TO 18+00	W. MEINECKE AVE	1,148	1,148	0	0	0	267	1,148	267	--	--	64	70	1,077
	11+60 TO 32+03	113TH ST	10,568	10,568	0	0	0	4,540	10,568	4,540	--	--	162	178	10,390
	160+00 TO 168+00	116TH ST	3,248	3,248	0	0	0	1,778	3,248	1,778	--	--	12	14	3,234
		UPRR													
	8+50 TO 17+50	TEMP SHOOFLY	1,176	1,176	0	0	0	0	1,176	0	6,673	--	6,144	--	1,176
	17+40 TO 17+80	TEMP SHOOFLY	80	80	0	0	0	0	80	0	0	--	0	--	80
	16+55 TO 17+40	TEMP SHOOFLY	0	0	0	0	0	0	0	0	380	--	380	--	0
	11+50 TO 17+50	FINAL CONFIG	1,049	1,049	0	0	0	0	1,049	0	2,652	--	2,596	--	1,049
	17+30 TO 17+60	FINAL CONFIG	550	550	0	0	0	0	550	0	0	--	0	--	550
	9+50 TO 17+50	FINAL CONFIG	5,060	5,060	0	0	0	0	5,060	0	0	--	0	--	5,060
	UNDISTRIBUTED	-	780	780	0	0	0	0	780	0	990	--	0	--	780
Division 1 Subtotal Stage 1			126,992	119,477	782	1,950	8,679	24,597	121,427	24,597	10,695	445	16,393	8,001	113,426

(CONTINUED ON NEXT SHEET)

CATEGORY 1000 UNLESS OTHERWISE NOTED

EARTH WORK SUMMARY

Division	From/To Station	Location	A Total Cut Volume (CY)	B 205.0100 Excavation Common (CY) (1)	C 205.0501.S.0001 Excavation, Hauling, and Disposal of Petroleum Contaminated Soil (TON)	D SPV. 0035.0003 Excavation, Hauling, and Reuse of Low-Level Contaminated Soil (CY) (7)	E SPV. 0195.0004 Excavation, Hauling, and Disposal of Low-Level Contaminated Soil (TON) TON = CY*1.7	F SPV. 0035.0001 EBS Excavation (CY) (2) (5)	Available Material	SPV. 0035.0002 EBS Backfill (CY) (2) Factor 1.00	209.1100 Backfill Granular Grade 1 (CY) (8)	SPV. 0195.0001 Fly Ash Stabilization (6)	Unexpanded Fill (3)	Expanded Fill (4) Factor 1.10	Waste (5)
2		MAINLINE													
	385+90 TO 481+81	IH 41 NB	73,195	46,095	0	9,000	30,770	10,657	55,095	10,657	--	938	7,041	7,745	47,350
	600+00 TO 629+60	IH 41 NB	70,641	70,641	0	0	0	3,289	70,641	3,289	--	289	5,134	5,647	64,994
		RAMPS													
	803+00 TO 814+28	MA	287	287	0	0	0	1,253	287	1,253	--	110	1,400	1,539	-1,252
	733+50 TO 748+44	NOA	9,861	9,861	0	0	0	1,660	9,861	1,660	--	146	5,866	6,452	3,409
	725+00 TO 735+00	NOB	1,288	1,288	0	0	0	1,111	1,288	1,111	--	98	455	500	788
		UPRR											3		
	19+50 TO 26+50	TEMP SHOOFLY	4,680	4,680	0	0	0	0	4,680	0	251	--	186	--	4,680
	19+50 TO 24+25	FINAL CONFIG	1,312	1,312	0	0	0	0	1,312	0	18	--	23	--	1,312
	19+50 TO 27+50	FINAL CONFIG	5,037	5,037	0	0	0	0	5,037	0	714	--	714	--	5,037
	UNDISTRIBUTED	-	1,068	1,426	0	0	0	0	1,426	0	90	--	0	--	1,426
Division 2 Subtotal Stage 2			167,369	140,627	0	9,000	30,770	17,970	149,627	17,970	1,073	1,581	20,818	21,884	127,743
3		MAINLINE													
	385+90NS TO 403+20NS	IH 41/USH 45 NB	13,050	13,050	0	0	0	1,922	13,050	1,922	--	169	0	0	13,050
	435+80NS TO 472+00NS	IH 41/USH 45 NB	5,700	5,700	0	0	0	4,022	5,700	4,022	--	354	0	0	5,700
	472+00 TO 477+00	TEMP MEDIAN	106	106	0	0	0	0	106	0	--	--	24	0	106
Division 3 Subtotal Stage 3			18,856	18,856	0	0	0	5,944	18,856	5,944	0	523	24	18,856	18,856

(CONTINUED ON NEXT SHEET)

Addendum No. 03
ID 1060-33-84
Revised Sheet 1013
September 24, 2020

CATEGORY 1000 UNLESS OTHERWISE NOTED

EARTH WORK SUMMARY (CONTINUED)

Division	From/To Station	Location	A Total Cut Volume (CY)	B 205.0100 Excavation Common (CY) (1)	C 205.0501.S.0001 Excavation, Hauling, and Disposal of Petroleum Contaminated Soil (TON)	D SPV. 0035.0003 Excavation, Hauling, and Reuse of Low-Level Contaminated Soil (CY) (7)	E SPV. 0195.0004 Excavation, Hauling, and Disposal of Low-Level Contaminated Soil (TON) TON = CY*1.7	F SPV. 0035.0001 EBS Excavation (CY) (2) (5)	Available Material	SPV. 0035.0002 EBS Backfill (CY) (2) Factor 1.00	209.1100 Backfill Granular Grade 1 (CY) (8)	SPV. 0195.0001 Fly Ash Stabilization (6)	Unexpanded Fill (3)	Expanded Fill (4) Factor 1.10	Waste (5)
4		MAINLINE													
	385+50 TO 480+00	IH 41 SB	86,636	86,636	0	0	0	10,500	86,636	10,500	--	924	1,211	1,333	85,303
	200+00 TO 228+62	IH 41 SB	17,544	17,544	0	0	0	3,180	17,544	3,180	--	280	1,250	1,375	16,168
		RAMPS													
	779+62 TO 792+50	BUC	7,709	7,709	0	0	0	1,431	7,709	1,431	--	126	1,123	1,235	6,474
	736+00 TO 744+00	NOD	8,652	8,652	0	0	0	889	8,652	889	--	78	0	0	8,652
	724+50 TO 733+00	NOG (GRADING)	20	20	0	0	0	944	20	944	--	83	6,600	7,260	-7,398
	728+00 TO 733+00	NOG	7,284	7,284	0	0	0	556	7,284	556	--	49	18,996	20,896	-12,714
	728+00 TO 733+00	NOC (GRADING)	19	19	0	0	0	556	19	556	--	49	8,784	9,662	-10,088
	728+00 TO 738+00	NOC (N40 WALL)	397	397	0	0	0	1,111	397	1,111	--	98	1,529	1,682	-1,285
	728+00 TO 732+50	NOC	1,700	1,700	0	0	0	611	1,700	611	--	54	0	0	1,700
Division 4 Subtotal Stage 4			129,959	129,959	0	0	0	19,778	129,959	19,778	0	1,740	39,493	43,443	86,812
5		LOCAL													
	48+80 TO 51+65	UNDERWOOD	480	480	0	0	0	633	480	633	--	--	56	62	418
	591+80 TO 599+00	N. MAYFAIR RD	2,159	2,159	0	0	0	1,600	2,159	1,600	--	--	0	0	2,159
Division 5 Subtotal Stage 5			2,639	2,639	0	0	0	2,233	2,639	2,233	0	0	56	62	2,577
TOTAL			445,815	411,558	782	10,950	39,449	70,523	422,508	70,523	11,768	4,290	76,785	92,246	349,414

Notes:

1) Excavation Common is equal to A - (C/1.7) - D - E
2) EBS Excavation SPV.00350100 (CY) to be backfilled with EBS Backfill SPV.0035.0101 (CY). EBS Excavation volume assumed as 25% roadway area (Freeway and Ramps) and 40% roadway area (local roads) at an average depth of 18-inches, in addition to locations shown in plans. All EBS Excavation to be wasted offsite unless specified by the engineer.
   EBS Backill Factor: 1.00
3) 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.
4) Expanded Fill. Factor = 1.10 Expanded Fill = Unexpanded Fill * Fill Factor
   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.
5) The storm sewer excavation is estimated to be between 60,000 and 90,000 cubic yards and total structural excavation from all structures is not estimated. 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. Waste does not include estimated yardage for EBS excavation (Column F).
6) Fly Ash Stabilization SPV.0195.0001 (TON). Fly Ash Stabilization volume assumed as 20% roadway area (Freeway and Ramps only) calculated at a rate of 110 pounds per square yard.
7) All Excavation, Hauling, and Reuse of Low-Level Contaminated Soil (D) shall be placed at locations as shown in the plans and capped with a 2-ft clay cap and topsoil (clay cap and topsoil paid separately).

3

Addendum No. 03
ID 1060-33-84
Revised Sheet 1014
September 24, 2020

ALL ITEMS CATEGORY 1000

CATEGORY 1000 UNLESS OTHERWISE NOTED

LIGHTING - FINAL LIGHTING LOCAL

654.0105 CONCRETE BASES TYPE 5*
654.0111 CONCRETE BASES TYPE 11
655.0610 ELECTRICAL WIRE LIGHTING 12 AWG*
657.0322 POLES TYPE 5-ALUMINUM*
657.0610 LUMINAIRE ARMS SINGLE MEMBER 4 1/2-INCH CLAMP 6-FT*
657.0620 LUMINAIRE ARMS SINGLE MEMBER 6-INCH CLAMP 4-FT*
659.0700 LIGHTING UNITS WALKWAY
SPV..0060.1012 23-FT STANDARD CONCRETE LIGHT POLES AND ARMS
SPV..0060.1014 LUMINAIRES UTILITY LED A (30K)
SPV..0060.1015 LUMINAIRES UTILITY LED C (30K)

CATEGORY	STAGE	SYSTEM	DESCRIPTION	LOCATION	OFFSET	654.0105* CONCRETE BASES TYPE 5	654.0111 CONCRETE BASES TYPE 11	655.0610* ELECTRICAL WIRE LIGHTING 12 AWG	657.0322* POLES TYPE 5 ALUMINUM	657.0610* LUMINAIRE ARMS SINGLE MEMBER 4 1/2-INCH CLAMP 6-FT	657.0620* LUMINAIRE ARMS SINGLE MEMBER 6-INCH CLAMP 4-FT	659.0700 LIGHTING UNITS WALKWAY	SPV.0060.1012 23-FT STANDARD CONCRETE LIGHT POLES AND ARMS	SPV.0060.1014 LUMINAIRES UTILITY LED A (30K)	SPV.0060.1015 LUMINAIRES UTILITY LED C (30K)	COMMENTS
						EACH	EACH	LF	EACH	EACH	EACH	EACH	EACH	EACH	EACH	
1100	2	H	H-3-04	12TA+31.0	25.0' LT	--	--	117	--	--	--	--	1	1	--	113TH STREET
			H-3-03	14TA+05.7	20.1' LT	--	--	117	--	--	--	--	1	1	--	"
			H-3-02	16TA+15.0	21.3' LT	--	--	117	--	--	--	--	1	1	--	"
			H-3-01	18TA+15.7	20.0' LT	--	--	117	--	--	--	--	1	1	--	"
			H-4-01	16ME+68.8	17.9' LT	--	--	117	--	--	--	--	1	1	--	MEINECKE AVENUE
			H-2-02	22ME+47.6	18.0' RT	--	--	117	--	--	--	--	1	1	--	"
			H-1-01	21ME+17.8	28.0' RT	--	--	117	1	--	1	--	--	1	--	STRUCTURE MOUNT
			H-2-01	18ME+69.1	27.0' RT	--	--	117	1	--	1	--	--	1	--	STRUCTURE MOUNT
			H-1-02	19TB+77.7	17.9' RT	--	--	117	--	--	--	--	1	1	--	112TH STREET
			H-1-09	29TB+34	17.9' RT	--	--	117	--	--	--	--	1	1	--	"
			H-1-10	31TB+24.0	17.9' RT	--	--	117	--	--	--	--	1	1	--	"
			H-5-01	19TA+71.7	19.2' LT	--	--	117	--	--	--	--	1	1	--	113TH STREET
			H-5-02	22TA+17.2	19.3' LT	--	--	117	--	--	--	--	1	1	--	"
			H-5-03	24TA+83.0	19.0' LT	--	--	117	--	--	--	--	1	1	--	"
			H-5-04	27TA+23.0	19.0' LT	--	--	117	--	--	--	--	1	1	--	"
	2	SUBTOTAL				0	0	1,755	2	0	2	0	13	15	0	

*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

Addendum No. 03
ID 1060-33-84
Revised Sheet 1154
September 24, 2020

FILE NAME : W:\Projects\19064\03_Deliverables\1060-33-84_mq_ltg.pptx PLOT DATE : 09/23/2020 5:13 PM PLOT BY : SINGH, INC. PLOT NAME : 030201_mq_ltg PLOT SCALE : 1:1

3

LIGHTING - FINAL LIGHTING LOCAL CONTINUED

654.0105 CONCRETE BASES TYPE 5*
654.0111 CONCRETE BASES TYPE 11
655.0610 ELECTRICAL WIRE LIGHTING 12 AWG*
657.0322 POLES TYPE 5-ALUMINUM*
657.0610 LUMINAIRE ARMS SINGLE MEMBER 4 1/2-INCH CLAMP 6-FT*
657.0620 LUMINAIRE ARMS SINGLE MEMBER 6-INCH CLAMP 4-FT*
659.0700 LIGHTING UNITS WALKWAY
SPV..0060.1012 23-FT STANDARD CONCRETE LIGHT POLES AND ARMS
SPV..0060.1014 LUMINAIRES UTILITY LED A (30K)
SPV..0060.1015 LUMINAIRES UTILITY LED C (30K)

CATEGORY	STAGE	SYSTEM	DESCRIPTION	LOCATION	OFFSET	654.0105* CONCRETE BASES TYPE 5	654.0111 CONCRETE BASES TYPE 11	655.0610* ELECTRICAL WIRE LIGHTING 12 AWG	657.0322* POLES TYPE 5 ALUMINUM	657.0610* LUMINAIRE ARMS SINGLE MEMBER 4 1/2-INCH CLAMP 6-FT	657.0620* LUMINAIRE ARMS SINGLE MEMBER 6-INCH CLAMP 4-FT	659.0700 LIGHTING UNITS WALKWAY	SPV.0060.1012 23-FT STANDARD CONCRETE LIGHT POLES AND ARMS	SPV.0060.1014 LUMINAIRES UTILITY LED A (30K)	SPV.0060.1015 LUMINAIRES UTILITY LED C (30K)	COMMENTS
						EACH	EACH	LF	EACH	EACH	EACH	EACH	EACH	EACH	EACH	
1100	3	91	91-4-67	591+60.0	53.3' RT	1	--	117	1	1	--	--	--	--	1	STH 100 - MAYFAIR ROAD
			91-4-68	593+16.9	53.0' RT	1	--	117	1	1	--	--	--	--	1	"
			91-4-72	596+58.1	52.7' RT	1	--	117	1	1	--	--	--	--	1	"
			91-4-73	599+97.1	62.4' RT	1	--	117	1	1	--	--	--	--	1	"
			91-5-46	592+95.2	52.8' LT	1	--	117	1	1	--	--	--	--	1	"
			91-5-47	593+73.1	52.9' LT	1	--	117	1	1	--	--	--	--	1	"
			91-5-50	596+20.4	52.6' LT	1	--	117	1	1	--	--	--	--	1	"
			91-5-52	597+96.4	52.4' LT	1	--	117	1	1	--	--	--	--	1	"
			WWL1	10XM+32.9	11.0" RT	--	1	54	--	--	--	1	--	--	--	WALKWAY LED LIGHTING UNITS
			WWL2	11XM+12.0	11.0' RT	--	1	54	--	--	--	1	--	--	--	"
			WWL3	11XM+78.0	11.0' RT	--	1	54	--	--	--	1	--	--	--	"
			WWL4	12XM+19.1	11.0' RT	--	1	54	--	--	--	1	--	--	--	"
			WWL5	13XM+00.8	11.0' RT	--	1	54	--	--	--	1	--	--	--	"
			WWL6	13XM+95.2	11.1' RT	--	1	54	--	--	--	1	--	--	--	"
			WWL7	14XM+85.6	11.1' RT	--	1	54	--	--	--	1	--	--	--	"
	3	SUBTOTAL				8	7	1,314	8	8	0	7	0	0	8	

*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

Addendum No. 03
ID 1060-33-84
Revised Sheet 1155
September 24, 2020

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	MISCELLANEOUS QUANTITIES	SHEET: 1155	E

FILE NAME : W:\Projects\19064\03_Deliverables\1060-33-84_mq_ltg.pptx PLOT DATE : 09/23/2020 5:13 PM PLOT BY : SINGH, INC. PLOT NAME : 030201_mq_ltg PLOT SCALE : 1:1

LIGHTING - FINAL LIGHTING LOCAL CONTINUED

654.0105 CONCRETE BASES TYPE 5*
654.0111 CONCRETE BASES TYPE 11
655.0610 ELECTRICAL WIRE LIGHTING 12 AWG*
657.0322 POLES TYPE 5-ALUMINUM*
657.0610 LUMINAIRE ARMS SINGLE MEMBER 4 1/2-INCH CLAMP 6-FT*
657.0620 LUMINAIRE ARMS SINGLE MEMBER 6-INCH CLAMP 4-FT*
659.0700 LIGHTING UNITS WALKWAY
SPV..0060.1023-FT STANDARD CONCRETE LIGHT POLES AND ARMS
SPV..0060.10LUMINAIRES UTILITY LED A (30K)
SPV..0060.10LUMINAIRES UTILITY LED C (30K)

CATEGORY	STAGE	SYSTEM	DESCRIPTION	LOCATION	OFFSET	654.0105* CONCRETE BASES TYPE 5	654.0111 CONCRETE BASES TYPE 11	655.0610* ELECTRICAL WIRE LIGHTING 12 AWG	657.0322* POLES TYPE 5 ALUMINUM	657.0610* LUMINAIRE ARMS SINGLE MEMBER 4 1/2-INCH CLAMP 6-FT	657.0620* LUMINAIRE ARMS SINGLE MEMBER 6-INCH CLAMP 4-FT	659.0700 LIGHTING UNITS WALKWAY	SPV.0060.1012 23-FT STANDARD CONCRETE LIGHT POLES AND ARMS	SPV.0060.1014 LUMINAIRES UTILITY LED A (30K)	SPV.0060.1015 LUMINAIRES UTILITY LED C (30K)	COMMENTS
						EACH	EACH	LF	EACH	EACH	EACH	EACH	EACH	EACH	EACH	
1100	4	88	88-03-51	103NO+79.4	52.5' RT	1	--	117	1	1	--	--	--	--	1	NORTH AVENUE
			88-03-52	105NO+38.8	56.2' RT	1	--	117	1	1	--	--	--	--	1	"
			88-03-53	108NO+25.8	45.6' RT	1	--	117	1	1	--	--	--	--	1	"
			88-03-58	113NO+68.4	62.0' RT	1	--	117	1	1	--	--	--	--	1	"
			88-03-59	115NO+21.0	56.4' RT	1	--	117	1	1	--	--	--	--	1	"
			88-03-60	119NO+01.0	52.6' RT	1	--	117	1	1	--	--	--	--	1	"
			88-2-14	104NO+57.6	51.9' LT	1	--	117	1	1	--	--	--	--	1	"
			H-3-08	106NO+69.3	99.5' LT	1	--	117	1	1	--	--	--	1	--	114TH STREET
			88-2-12	107NO+42.6	52.9' LT	1	--	117	1	1	--	--	--	--	1	NORTH AVENUE
			88-2-11	108NO+99.1	55.6' LT	1	--	117	1	1	--	--	--	--	1	"
			88-2-8	113NO+12.6	56.6' LT	1	--	117	1	1	--	--	--	--	1	"
			88-2-04	120NO+23.6	45.1' LT	1	--	117	1	1	--	--	--	--	1	"
	4	SUBTOTAL				12	0	1,404	12	12	0	0	0	1	11	
1100	TOTALS					20	7	4,473	22	20	2	7	13	16	19	

*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

Addendum No. 03
ID 1060-33-84
Revised Sheet 1156
September 24, 2020

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	MISCELLANEOUS QUANTITIES	SHEET: 1156	E

FILE NAME : W:\Projects\19064\03_Deliverables\1060-33-84_mq_ltg.pptx PLOT DATE : 09/23/2020 5:13 PM PLOT BY : SINGH, INC. PLOT NAME : 030201_mq_ltg PLOT SCALE : 1:1

Addendum No. 03
ID 1060-33-84
Revised Sheet 1157
September 24, 2020

3

3

LIGHTING - LOCAL LIGHTING CONDUIT AND WIRE

652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH*
652.0235 CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH*
655.0620 ELECTRICAL WIRE LIGHTING 8 AWG*
655.0630 ELECTRICAL WIRE LIGHTING 4 AWG*
SPV.0090.1004 POLYETHYLENE DUCT 1 1/4-INCH

CATEGORY	STAGE	SYSTEM	CIRCUIT	FROM	TO	652.0225* CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	652.0235* CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH	655.0620* ELECTRICAL WIRE LIGHTING 8 AWG	655.0630* ELECTRICAL WIRE LIGHTING 4 AWG	SPV.0090.1004 POLYETHYLENE DUCT 1 1/4-INCH	COMMENTS
						LF	LF	LF	LF	LF	
1100	2	H	3	H-3-04	H-3-03	195	--	195	585	--	--
			3	H-3-03	H-3-02	215	--	215	645	--	--
			3	H-3-02	H-3-01	200	--	200	600	--	--
			3	H-3-01	H	500	100	600	1,800	100	--
			4	H	H-4-01	500	50	550	1,650	50	--
			2	H	H-2-01	400	50	450	1,350	50	--
			2	H	H-2-02	500	50	550	1,650	50	--
			1	H	H-1-01	440	50	490	1,470	50	--
			1	H-1-01	H-1-02	70	50	120	360	50	--
			1	H-1-02	H-1-05	250	--	250	750	--	--
			5	H	H-5-01	100	50	150	450	50	--
			5	H-5-01	H-5-02	245	--	245	735	--	--
			5	H-5-02	H-5-03	265	--	265	795	--	--
			5	H-5-03	H-5-04	240	--	240	720	--	--
			6	H	LPB-H-8	550	50	600	1,800	--	--
			6	LPB-H-8	LPB-H-7	--	50	50	150	--	--
			6	LPB-H-7	H-6-01	50	--	50	150	--	--
	2	H	SUBTOTAL			4,720	500	5,220	15,660	400	

*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

3

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	MISCELLANEOUS QUANTITIES	SHEET: 1157	E

FILE NAME : W:\Projects\19064\03_Deliverables\1060-33-84_mq_ltg.pptx PLOT DATE : 09/23/2020 5:13 PM PLOT BY : SINGH, INC. PLOT NAME : 030201_mq_ltg PLOT SCALE : 1:1

Addendum No. 03
ID 1060-33-84
Revised Sheet 1158
September 24, 2020

3

3

LIGHTING - LOCAL LIGHTING CONDUIT AND WIRE CONTINUED

652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH*
652.0235 CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH*
655.0620 ELECTRICAL WIRE LIGHTING 8 AWG*
655.0630 ELECTRICAL WIRE LIGHTING 4 AWG*

SPV.0090.10 POLYETHYLENE DUCT 1 1/4-INCH 3

3

CATEGORY	STAGE	SYSTEM	CIRCUIT	FROM	TO	652.0225* CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	652.0235* CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH	655.0620* ELECTRICAL WIRE LIGHTING 8 AWG	655.0630* ELECTRICAL WIRE LIGHTING 4 AWG	SPV.0090.1004 POLYETHYLENE DUCT 1 1/4-INCH	COMMENTS
						LF	LF	LF	LF	LF	
1100	3	91	4	91-4-66	91-4-67	155	--	155	465	--	--
			4	91-4-67	91-4-68	155	--	155	465	--	--
			4	91-4-68	91-4-72	330	--	330	990	--	--
			4	91-4-72	LPB-91-3, LPB-91-2	200		200	600	100	--
			4	LPB-91-3, LPB-91-2	UDL - (91-4-69 / 91-4-70 / 91-4-71)	160		160	480	100	UDL - STH 100 / MAYFAIR ROAD
			4	LPB-91-3	91-4-WWL1	130	--	520	--	--	--
			4	91-4-WWL1	91-4-WWL2	70	--	280	--	--	--
			4	91-4-WWL2	91-4-WWL3	70	--	210	--	--	--
			4	91-4-WWL3	91-4-WWL4	50	--	150	--	--	--
			4	91-4-WWL4	91-4-WWL5	85	--	255	--	--	--
			4	91-4-WWL5	91-4-WWL6	95	--	285	--	--	--
			4	91-4-WWL6	91-4-WWL7	90	--	270	--	--	--
			4	91-4-72	91-4-73	330	--	330	990	--	--
			4	91-4-73	91-5-45	140	--	140	420	--	--
			5	91-5-45	91-5-46	170	--	170	510	--	--
			5	91-5-46	91-5-47	170	--	170	510	--	--
			5	91-5-47	91-5-51	240	--	240	720	--	--
			5	91-5-51	LPB-91-1, LPB-91-2	100	--	100	300	100	--
			5	LPB-91-1, LPB-91-2	UDL - (91-5-48 / 91-5-49 / 91-5-50)	140	--	140	420	100	UDL - STH 100 / MAYFAIR ROAD
			5	91-5-51	91-5-52	170	--	170	510	--	--
			5	91-5-52	91-5-45	160	--	160	480	--	--
	3	91	SUBTOTAL			3,210	0	4,590	7,860	400	

*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	MISCELLANEOUS QUANTITIES	SHEET: 1158	E

FILE NAME : W:\Projects\19064\03_Deliverables\1060-33-84_mq_ltg.pptx PLOT DATE : 09/23/2020 5:13 PM PLOT BY : SINGH, INC. PLOT NAME : 030201_mq_ltg PLOT SCALE : 1:1

Addendum No. 03
ID 1060-33-84
Revised Sheet 1159
September 24, 2020

3

LIGHTING - LOCAL LIGHTING CONDUIT AND WIRE CONTINUED

652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH*
652.0235 CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH*
655.0620 ELECTRICAL WIRE LIGHTING 8 AWG*
655.0630 ELECTRICAL WIRE LIGHTING 4 AWG*
SPV.0090.10(POLYETHYLENE DUCT 1 1/4-INCH 3

3

CATEGORY	STAGE	SYSTEM	CIRCUIT	FROM	TO	652.0225* CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	652.0235* CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH	655.0620* ELECTRICAL WIRE LIGHTING 8 AWG	655.0630* ELECTRICAL WIRE LIGHTING 4 AWG	SPV.0090.1004 POLYETHYLENE DUCT 1 1/4-INCH	COMMENTS
						LF	LF	LF	LF	LF	
1100	4	88	1	88	LPB-88-1	--	50	150	450	--	--
			1	LPB-88-1	LPB-88-2	--	50	50	150	50	--
			1	LPB-88-2	88-1-18	50	--	50	150	--	--
			2	88	LPB-88-1	--	50	50	150	--	
			2	LPB-88-1	LPB-88-2	--	--	50	150	--	
			2	LPB-BB-2	EX. JB-88-2	200	--	160	480	--	INTERCEPT EXISTING JB
			2	88-2-15	88-2-14	170	--	170	510	--	--
			2	88-2-14	88-2-12	280	--	280	840	--	--
			2	88-2-12	88-2-11	155	--	155	465	--	--
			2	88-2-11	88-2-8	410	--	410	1,230	--	--
			2	88-2-8	88-2-4	710	--	710	2,130	--	--
			2	88-2-4	88-2-3	190	--	190	570	--	--
			3	88	LPB-88-1	--	50	50	150	--	--
			3	LPB-88-1	LPB-88-3	--	50	50	150	50	--
			3	LPB-BB-3	EX. JB-88-4	200	--	200	600	--	INTERCEPT EXISTING JB
			3	88-3-51	88-3-52	155	--	155	465	--	--
			3	88-3-52	88-3-53	275	--	275	825	--	--
			3	88-3-53	UDL - (88-3-56/88-3-57)	350	--	350	1,050	--	UDL - NORTH AVENUE
			3	88-3-53	88-3-58	555	--	555	1,665	--	--
			3	88-3-58	88-3-59	150	--	150	450	--	--
			3	88-3-59	88-3-60	380	--	380	1,140	--	--
			3	88-3-60	88-3-63	390	--	390	1,170	--	--
			5	88	LPB-88-1	--	50	50	150	--	--
			5	LPB-88-1	LPB-88-3	--	50	50	150	50	--
			5	LPB-BB-3	EX. JB-88-4	200	--	200	600	--	INTERCEPT EXISTING JB
			5	EX. JB-88-4	88-5-66	100	--	100	300	--	--
	4	88	SUBTOTAL			4,920	350	5,380	16,140	150	
1100					TOTALS	12,850	850	15,190	39,660	950	

*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	MISCELLANEOUS QUANTITIES	SHEET: 1159	E

FILE NAME : W:\Projects\19064\03_Deliverables\1060-33-84_mq_ltg.pptx PLOT DATE : 09/23/2020 5:13 PM PLOT BY : SINGH, INC. PLOT NAME : 030201_mq_ltg PLOT SCALE : 1:1

LIGHTING - CONTROL AND SERVICES
240/480 VAC 3-WIRE

654.0217	CONCRETE CONTROL CABINET BASES TYPE 9 SPECIAL
654.0230	CONCRETE CONTROL CABINET BASES TYPE L30
655.0640	ELECTRICAL WIRE LIGHTING 1 AWG
656.0400.1001	ELECTRICAL SERVICE MAIN LUGS ONLY METER PEDESTAL (HL-40-UC)
656.0400.1002	ELECTRICAL SERVICE MAIN LUGS ONLY METER PEDESTAL (HL-40-NA)
656.0400.1003	ELECTRICAL SERVICE MAIN LUGS ONLY METER PEDESTAL (HL-40-BS)
656.0400.1004	ELECTRICAL SERVICE MAIN LUGS ONLY METER PEDESTAL (H)
656.0400.1005	ELECTRICAL SERVICE MAIN LUGS ONLY METER PEDESTAL (88)
659.2230	LIGHTING CONTROL CABINETS 240/480 30-INCH
SPV.0060.1013	LIGHTING CONTROL CABINETS 240/480 WAUWATOSA

3

3

3

CATEGORY	STAGE	DESCRIPTION	LOCATION	654.0217 CONCRETE CONTROL CABINET BASES TYPE 9 SPECIAL	654.0230 CONCRETE CONTROL CABINET BASES TYPE L30	655.0640 ELECTRICAL WIRE LIGHTING 1 AWG	656.0400.1001 ELECTRICAL SERVICE MAIN LUGS ONLY METER PEDESTAL (HL-40-UC)	656.0400.1002 ELECTRICAL SERVICE MAIN LUGS ONLY METER PEDESTAL (HL-40-NA)	656.0400.1003 ELECTRICAL SERVICE MAIN LUGS ONLY METER PEDESTAL (HL-40-BS)	656.0400.1004 ELECTRICAL SERVICE MAIN LUGS ONLY METER PEDESTAL (H)	656.0400.1005 ELECTRICAL SERVICE MAIN LUGS ONLY METER PEDESTAL (88)	659.2230 LIGHTING CONTROL CABINETS 240/480 30-INCH	SPV.0060.1013 LIGHTING CONTROL CABINETS 240/480 WAUWATOSA	COMMENTS
				EACH	EACH	LF	LS	LS	LS	LS	LS	EACH	EACH	
1100	2	H	113TH STREET NORTH OF MEINECKE AVENUE	1	--	18	--	--	--	1	--	--	1	--
	4	88	NORTH AVENUE SOUTH OF 117TH STREET	1	--	18	--	--	--	--	1	--	1	--
1100	4	HL-40-WW	NW CORNER OF IH 41 AND WATERTOWN PLANK ROAD	--	--	--	--	--	--	--	--	--	--	INSTALLED UNDER 1060-33-72
	4	HL-40-UC	SW CORNER OF IH 41 AND UNDERWOOD PARKWAY	--	1	18	1	--	--	--	--	1	--	--
	4	HL-40-NA	SW CORNER OF IH 41 AND CENTER STREET	--	1	18	--	1	--	--	--	1	--	--
	5	HL-40-BS	NE CORNER OF IH 41 AND BURLEIGH STREET	--	1	18	--	--	1	--	--	1	--	--
1100			TOTALS	2	3	90	1	1	1	1	1	3	2	

PLAQUE TEXT

HL-40-UC
UNDERWOOD PARKWAY
2 - 480 VAC WARNING (2 REQUIRED PER LOCATION; METER PEDESTAL AND CABINET DOOR)

HL-40-NA
NORTH AVENUE
2 - 480 VAC WARNING (2 REQUIRED PER LOCATION; METER PEDESTAL AND CABINET DOOR)

HL-40-BS
BURLEIGH STREET
2 - 480 VAC WARNING (2 REQUIRED PER LOCATION; METER PEDESTAL AND CABINET DOOR)

Addendum No. 03
ID 1060-33-84
Revised Sheet 1160
September 24, 2020

LIGHTING - LIGHTING SYSTEM

SPV.0105.1001 MAINTENANCE OF LIGHTING SYSTEMS
SPV.0105.1002 LIGHTING SYSTEM INTEGRATOR
SPV.0105.1003 LIGHTING SYSTEM SURVEY

CATEGORY	STAGE	DESCRIPTION / SYSTEM	LOCATION	SPV.0105.1001 MAINTENANCE OF LIGHTING SYSTEMS	SPV.0105.1002 LIGHTING SYSTEM INTEGRATOR	SPV.0105.1003 LIGHTING SYSTEM SURVEY	COMMENTS
				LS	LS	LS	
1100	1-5	HL-40-WW	IH 41 / USH 45	0.1	0.1	0.1	--
		HL-40-UC	IH 41 / USH 45	0.3	0.3	0.3	--
		HL-40-NA	IH 41 / USH 45	0.3	0.3	0.3	--
		HL-40-BS	IH 41 / USH 45	0.3	0.3	0.3	--
1100	1-5	TOTALS		1	1	1	

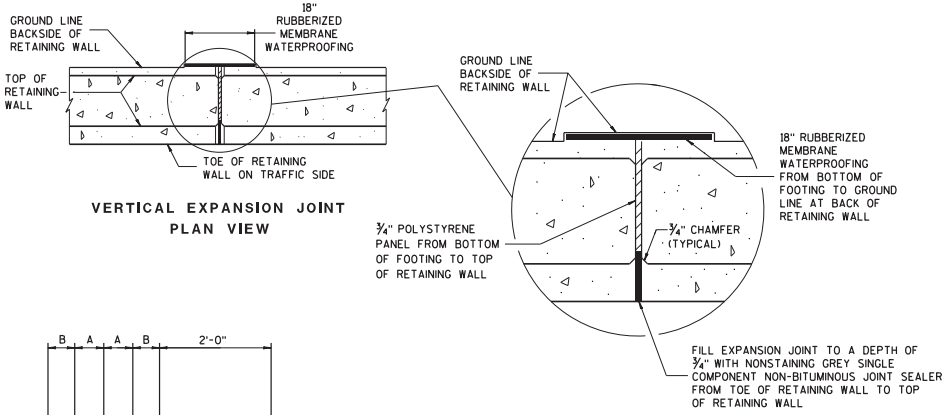
LIGHTING - PULL BOXES LOCAL

SPV.0060.1010 LIGHTING PULL BOXES WAUWATOSA 17-INCH x 30-INCH
SPV.0060.1011 LIGHTING PULL BOXES WAUWATOSA 24-INCH x 36-INCH

CATEGORY	STAGE	SYSTEM	DESCRIPTION	LOCATION	OFFSET	SPV.0060.1010 LIGHTING PULL BOXES WAUWATOSA 17-INCH x 30-INCH	SPV.0060.1011 LIGHTING PULL BOXES WAUWATOSA 24-INCH x 36-INCH	COMMENTS
						EACH	EACH	
1100	2	H	LPB-H-1	22TA+90.8	22.4' RT	--	1	--
			LPB-H-2	19TA+55.5	19.4' RT	1	--	--
			LPB-H-3	18TA+55.2	18.1' RT	1	--	--
			LPB-H-4	18TA+56.1	26.1' LT	1	--	--
			LPB-H-5	19TA+56.1	25.1' LT	1	--	--
			LPB-H-6	27TA+62.4	21.4' LT	1	--	--
			LPB-H-7	28TA+41.3	20.5' LT	1	--	--
			LPB-H-8	28TA+55.6	18.0' RT	1	--	--
	2	H	SUBTOTAL			7	1	
	3	91	LPB-91-1	596+05.6	55.3' LT	1	--	--
			LPB-91-2	595+99.6	6.5' RT	1	--	--
			LPB-91-3	595+99.9	52.4' RT	1	--	--
	3	91	SUBTOTAL			3	0	
	4	88	LPB-88-1	97NO+25.0	3.3' LT	--	1	--
			LPB-88-2	97NO+25.1	54.3' LT	1	--	--
			LPB-88-3	97NO+24.2	55.1' RT	1	--	--
	4	88	SUBTOTAL			2	1	
1100			TOTALS			12	2	

Addendum No. 03
ID 1060-33-84
Revised Sheet 1161
September 24, 2020

FILE NAME : W:\Projects\19064\03_Deliverables\1060-33-84_mq_ltg.pptx PLOT DATE : 09/23/2020 5:13 PM PLOT BY : SINGH, INC. PLOT NAME : 030201_mq_ltg PLOT SCALE : 1:1



VERTICAL EXPANSION JOINT
PLAN VIEW

DELINEATION

Addendum No. 03
ID 1060-33-84
Added Sheet 1422A
September 24, 2020

GENERAL NOTES

PROVIDE EXPANSION JOINTS WHERE THERE ARE EXISTING EXPANSION JOINTS OR AT THE END OF EACH POUR.

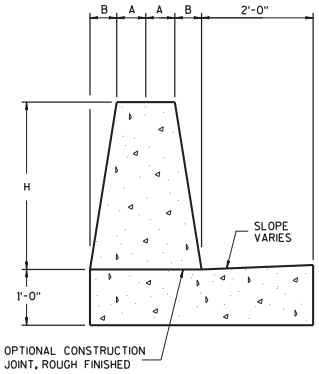
NO HORIZONTAL STEEL CROSSES EXPANSION JOINTS.

CONSTRUCT PER STANDARD SPECIFICATION 603. SPLICES OF LONGITUDINAL BARS TO BE 2' LONG AND FIRMLY TIED AND FASETENED TOGETHER UNLESS NOTED OTHERWISES.

4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATIONS 501.

USE ¾" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS NOTED OTHERWISE.

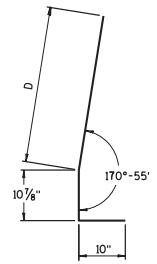
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR.



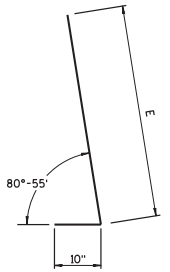
ROADSIDE RETAINING WALL

BARRIER WALL DIMENSIONS

BARRIER HEIGHT H INCHES	A INCHES	B INCHES	NUMBER OF NO. 5 BARS EACH
32	7	5	8
36	6¼	5¾	8
42	5¼	6¾	10
56	3	9	11



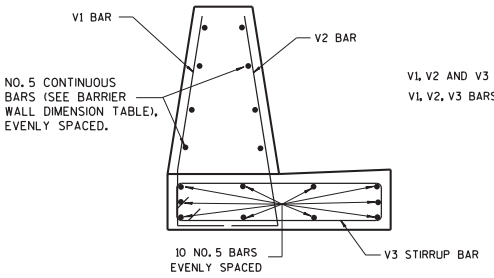
V1 BAR
BENDING DETAIL



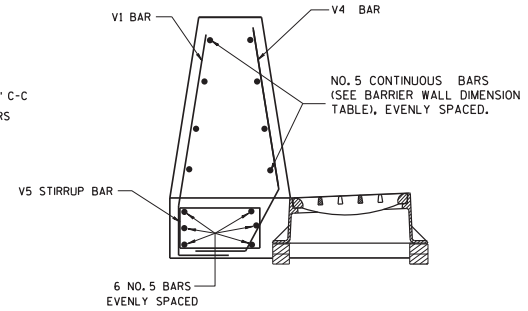
V2 BAR
BENDING DETAIL

BAR CHART
ROADSIDE RETAINING WALL

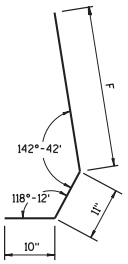
BARRIER HEIGHT	V1 BAR D	V2 BAR E	V4 BAR F
32"	2'-5½"	3'-4½"	2'-6½"
36"	2'-9½"	3'-9¾"	2'-10¾"
42"	3'-3½"	4'-2½"	3'-4¾"
56"	4'-5¾"	5'-4¾"	4'-6¾"



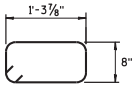
ROADSIDE RETAINING WALL
NORMAL BAR PLACEMENT



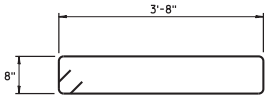
ROADSIDE RETAINING WALL
BAR PLACEMENT NEAR
INLET



V4 BAR
BENDING DETAIL



V5 STIRRUP BAR
BENDING DETAIL



V3 STIRRUP BAR
BENDING DETAIL

SINGLE SLOPE
ROADSIDE RETAINING WALL

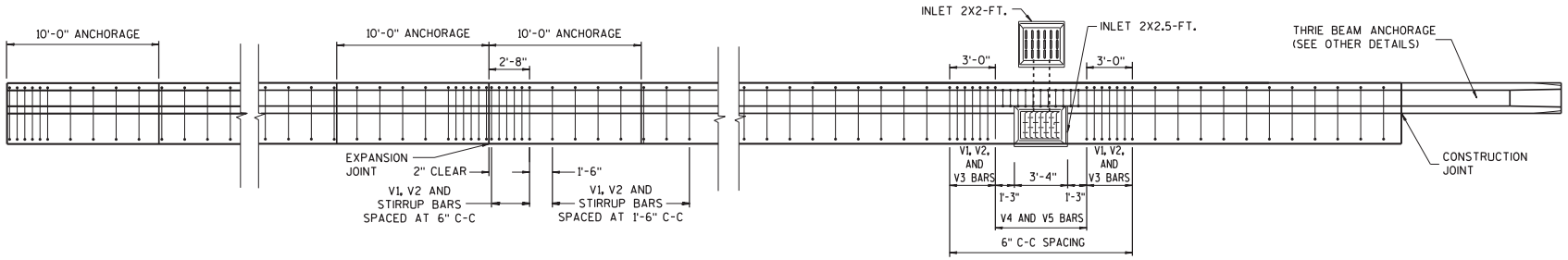
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

S.D.D. 14 B 41-3a

1422A

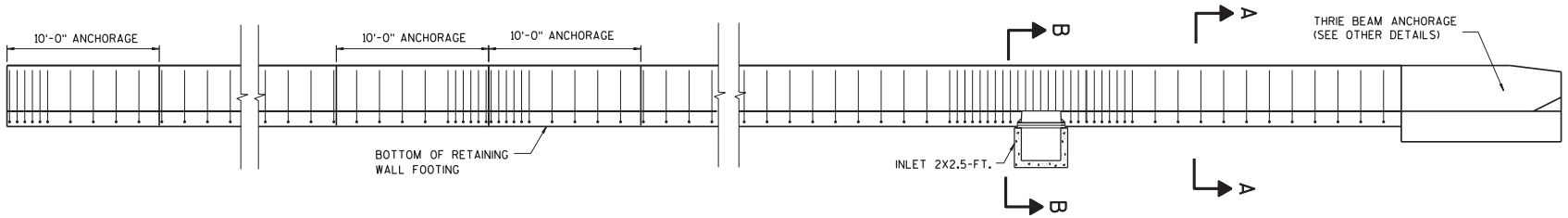
6

S.D.D. 14 B 41-3a



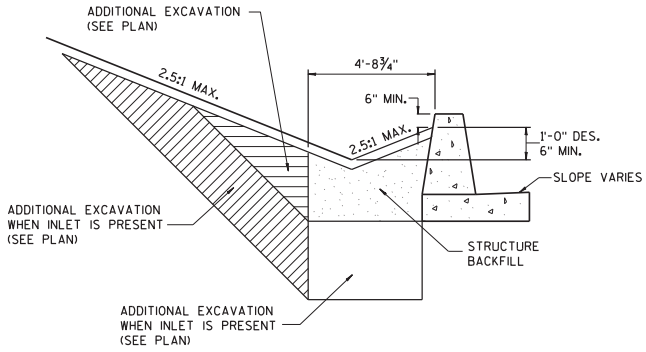
PLAN VIEW

NOTE: HORIZONTAL BARS ARE NOT SHOWN. SEE OTHER DETAILS FOR HORIZONTAL BARS.

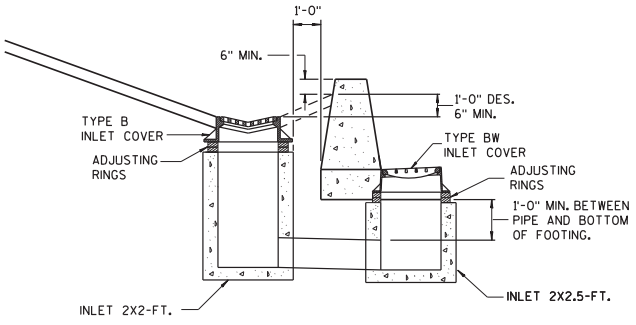


ELEVATION VIEW

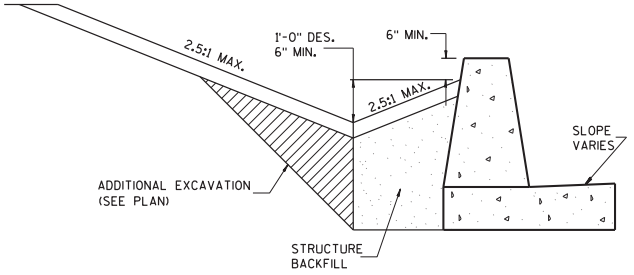
NOTE: HORIZONTAL BARS ARE NOT SHOWN. SEE OTHER DETAILS FOR HORIZONTAL BARS.



SECTION A-A



SECTION B-B



MINIMUM DESIGN OF EARTH WORK

MINIMUM DESIGN OF EARTH WORK FOR INLET

Addendum No. 03
ID 1060-33-84
Added Sheet 1422B
September 24, 2020

SINGLE SLOPE ROADSIDE RETAINING WALL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017
DATE
FHWA

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

1422B

6

S.D.D. 14 B 41-3b

6

S.D.D. 14 B 41-3b

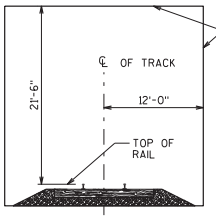
STATE PROJECT NUMBER

1060-33-84

TOTAL ESTIMATED QUANTITIES

ITEM NO.	BID ITEM	UNIT	B-40-878							TEMPORARY STRUCTURE						TOTAL
			S. APPR. SLAB	SOUTH ABUT.	PIER	NORTH ABUT.	N. APPR. SLAB	SUPER	SUB-TOTAL	SOUTH ABUT.	PIER 1	PIER 2	NORTH ABUT.	SUPER	SUB-TOTAL	
203.0200.0004	REMOVING OLD STRUCTURE STA. 417NS+50	LS	-	-	-	-	-	-	1	-	-	-	-	-	-	1
203.0200.0005	REMOVING OLD STRUCTURE STA. 418NS+15	LS	-	-	-	-	-	-	-	-	-	-	-	-	1	1
203.0200.0006	REMOVING OLD STRUCTURE STA. 22RDE+37	LS	-	-	-	-	-	-	1	-	-	-	-	-	-	1
203.0210.S.0001	ABATEMENT OF ASBESTOS CONTAINING MATERIAL STRUCTURE B-40-0137	LS	-	-	-	-	-	-	1	-	-	-	-	-	-	1
205.0501.S.0001	EXCAVATION, HAULING, AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL	TON	-	5,110	-	5,770	-	-	10,880	-	-	-	-	-	-	10,880
206.1000.0008	EXCAVATION FOR STRUCTURES BRIDGES B-40-878	LS	-	-	-	-	-	-	1	-	-	-	-	-	-	1
210.1100	BACKFILL STRUCTURE TYPE A	CY	-	-	-	-	-	-	-	-	-	-	95	-	95	95
502.0100	CONCRETE MASONRY BRIDGES	CY	35	482	341	524	35	-	1,417	43	131	131	40	-	345	1,762
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	-	377	-	522	-	-	899	-	-	-	-	-	-	899
502.4207	ADHESIVE ANCHORS NO. 7 BAR	EACH	-	-	-	-	-	-	-	23	-	-	-	-	23	23
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	5,060	289,150	28,610	288,490	5,060	-	616,370	6,270	4,620	4,550	6,410	-	21,850	638,220
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	-	100,010	42,690	102,430	-	-	245,130	-	-	-	-	-	-	245,130
505.0911	BAR COUPLERS NO. 11	EACH	-	218	-	218	-	-	436	-	-	-	-	-	-	436
506.0105	STRUCTURAL STEEL CARBON	LB	-	1,736	-	1,736	-	(3) 11,457	14,929	544	-	-	544	5,534	6,622	(3) 21,551
506.0605	STRUCTURAL STEEL HS	LB	-	-	-	-	-	(3) 2,087,788	(3) 2,087,788	-	-	-	-	991,047	991,047	(3) 3,078,835
506.3004	WELDED STUD SHEAR CONNECTORS 3/4X4-INCH	EACH	-	56	-	56	-	-	112	32	-	-	32	-	64	176
511.1200.0003	TEMPORARY SHORING B-40-878	SF	-	-	1,758	-	-	-	1,758	-	225	450	-	-	675	2,433
514.1000	RAILROAD DECK DRAIN SYSTEM B-40-878	LS	-	-	-	-	-	1	1	-	-	-	-	-	-	1
514.2625	DOWNSPOUT 6-INCH	LF	-	-	-	-	-	46	46	-	-	-	-	-	-	46
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	-	64	-	67	-	-	131	-	-	-	-	-	-	131
517.0600.0007	PAINTING EPOXY SYSTEM B-40-878	LS	-	-	-	-	-	1	1	-	-	-	-	-	-	1
517.1010.S.0007	CONCRETE STAINING B-40-878	SF	-	3,314	3,042	4,009	-	-	10,365	-	-	-	-	-	-	10,365
517.1050.S.0007	ARCHITECTURAL SURFACE TREATMENT B-40-878	SF	-	2,578	2,902	3,306	-	-	8,786	-	-	-	-	-	-	8,786
550.0500	PILE POINTS	EACH	-	-	-	-	-	-	-	5	10	10	5	-	30	30
612.0106	PIPE UNDERDRAIN 6-INCH	LF	-	354	-	380	-	-	734	-	-	-	-	-	-	734
612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	-	5	-	73	-	-	78	-	-	-	-	-	-	78
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	-	295	-	317	-	-	612	-	-	-	-	-	-	612
645.0140	GEOTEXTILE TYPE SAS	SY	-	382	-	455	-	-	837	543	-	-	771	-	1,314	2,151
SPV.0035.0003	EXCAVATION, HAULING, AND REUSE OF LOW-LEVEL CONTAMINATED SOIL	CY	-	360	-	-	-	-	360	-	-	-	-	-	-	360
SPV.0060.4008	PILE DYNAMIC ANALYZER (PDA) TESTING	EACH	-	-	-	-	-	-	-	2	2	2	2	-	8	8
SPV.0060.4028	PILE DYNAMIC ANALYZER (PDA) RESTRIKES	EACH	-	-	-	-	-	-	-	2	2	2	2	-	8	8
SPV.0060.4048	CASE PILE WAVE ANALYSIS PROGRAM (CAP/WAP) EVALUATION	EACH	-	-	-	-	-	-	-	1	1	1	1	-	4	4
SPV.0060.4068	BEARING PADS ELASTOMERIC SPECIAL TEMPORARY	EACH	-	-	-	-	-	-	-	3	22	22	3	-	50	50
SPV.0060.4088	BEARINGS HIGH-LOAD MULTI-ROTATIONAL T-GUIDED UPRR	EACH	-	2	-	2	-	-	4	-	-	-	-	-	-	4
SPV.0060.4108	BEARINGS HIGH-LOAD MULTI-ROTATIONAL NON-GUIDED UPRR	EACH	-	-	4	-	-	-	4	-	-	-	-	-	-	4
SPV.0060.4128	BEARINGS HIGH-LOAD MULTI-ROTATIONAL L-GUIDED UPRR	EACH	-	1	2	1	-	-	4	-	-	-	-	-	-	4
SPV.0060.4148	THERMAL INTEGRITY PROFILER (TIP) TESTING, DRILLED FOUNDATION SHAFT 59.06-INCH	EACH	-	-	4	-	-	-	4	-	-	-	-	-	-	4
SPV.0060.4168	THERMAL INTEGRITY PROFILER (TIP) TESTING, WALL SECANT PILE 59.06-INCH	EACH	-	3	-	3	-	-	6	-	-	-	-	-	-	6
SPV.0060.4171	CROSSHOLE SONIC LOG (CSL) TESTING, DRILLED FOUNDATION SHAFT 59.06 INCH	EACH	-	-	4	-	-	-	4	-	-	-	-	-	-	4
SPV.0060.4172	CROSSHOLE SONIC LOG (CSL) TESTING, WALL SECANT PILE 59.06-INCH	EACH	-	36	-	36	-	-	72	-	-	-	-	-	-	72
SPV.0060.4181	PILE INTEGRITY TESTING (PIT), DRILLED FOUNDATION SHAFT 59.06 INCH	EACH	-	-	4	-	-	-	4	-	-	-	-	-	-	4
SPV.0060.4182	PILE INTEGRITY TESTING (PIT), WALL SECANT PILE 59.06-INCH	EACH	-	3	-	3	-	-	6	-	-	-	-	-	-	6
SPV.0075.4008	OBSTRUCTIONS DRILLED FOUNDATION SHAFT	HRS	-	-	6	-	-	-	6	-	-	-	-	-	-	6
SPV.0075.4048	OBSTRUCTIONS WALL SECANT PILE	HRS	-	18	-	18	-	-	36	-	-	-	-	-	-	36
SPV.0090.4008	PILING STEEL HP 14-INCH X 89 LB	LF	-	-	-	-	-	-	-	-	750	750	-	-	1,500	1,500
SPV.0090.4009	PILING STEEL HP 14-INCH X 117 LB	LF	-	-	-	-	-	-	-	750	-	-	750	-	1,500	1,500
SPV.0090.4028	DRILLED FOUNDATION SHAFT 59.06-INCH	LF	-	-	211	-	-	-	211	-	-	-	-	-	-	211
SPV.0090.4048	WALL SECANT PILE 59.06-INCH	LF	-	2,263	-	2,257	-	-	4,520	-	-	-	-	-	-	4,520
SPV.0090.4068	HANDRAIL B-40-878	LF	-	134	-	161	-	-	295	-	-	-	-	-	-	295
SPV.0090.4088	HANDRAIL TEMPORARY	LF	-	-	-	-	-	-	-	199	-	-	277	360	836	836
SPV.0105.4008	TRIAL WALL PANEL SECANT PILE 59.06-INCH	LS	-	-	-	-	-	-	1	-	-	-	-	-	-	1
SPV.0105.4015	TRACK, SHORING AND EXISTING STRUCTURE MONITORING UPRR	LS	-	-	-	-	-	-	-	-	-	-	-	-	1	1
SPV.0165.4028	TEMPORARY SHORING RAILROAD TYPE A	SF	-	-	-	-	-	-	-	2,210	-	-	3,676	-	5,886	5,886
SPV.0165.4048	TEMPORARY SHORING RAILROAD TYPE B	SF	-	-	-	-	-	-	-	-	-	-	120	-	120	120
SPV.0165.4088	PRECAST CONCRETE MODULAR WINGWALL	SF	-	397	-	352	-	-	749	-	-	-	-	-	-	749
SPV.0165.4090	GEOCOMPOSITE WALL DRAIN	SF	-	445	-	675	-	-	1,120	-	-	-	-	-	-	1,120
SPV.0180.4008	MEMBRANE WATERPROOFING	SY	70	-	-	-	70	1,090	1,230	-	-	-	-	820	820	2,050
SPV.0180.4048	ASPHALT PANELS	SY	140	-	-	-	140	1,906	2,186	-	-	-	-	1,431	1,431	3,617
SPV.0195.4008	BASE AGGREGATE OPEN GRADED SPECIAL	TON	-	2,230	-	1,940	-	-	4,170	2,840	-	-	2,520	-	5,360	9,530
	NON-BID ITEM															
	NAME PLATE	EACH														1
	BRIDGE SEAT PROTECTION	LS														1
	PREFORMED JOINT FILLER	SIZE														3/4", 1 1/2", 2
	EXPANDED POLYSTYRENE	SIZE														1"
	NON-BITUMINOUS JOINT SEALER	SIZE														3/4", 1 1/2", 2

ALL ITEMS ARE CATEGORY 2140



MINIMUM CONSTRUCTION CLEARANCE ENVELOPE

(NORMAL TO RAILROAD)

Addendum No. 03
ID 1060-33-84
Revised Sheet 1984
September 24, 2020

SDR
09/24/20

WISCONSIN
JAMES V. CARLSON III
E-35185
09/23/2020
MILWAUKEE, WIS.
PROFESSIONAL ENGINEER

NO.	DATE	REVISION	BY
(3)	9/23/20	STL. QTY. ADDENDUM	JWCIII

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

FORWARD 45

STRUCTURE B-40-878

MILWAUKEE SUB. M.P. 91.84
LAT. 43°3'21"N/LONG. 88°2'59"W

DRAWN BY ENS

PLANS CK'D. JWC

QUANTITIES

SHEET 4 OF 78

1984

8

8

STATE PROJECT NUMBER
1060-33-84

SOIL PARAMETERS

SOIL DESCRIPTION	FRICTION ANGLE (DEGREES)	COHESION (PSF)	UNIT WEIGHT (PCF)
GRANULAR BACKFILL WITHIN THE WALL IN THE REINFORCING ZONE	30	0	120
FILL BEHIND/BELOW THE REINFORCING ZONE	31	0	120
B-16			
SILT, BROWN, SOME CLAY, TRACE SAND EL. 721.3 TO EL. 714.8	0	4,500	130
SILT, BROWN, SOME FINE TO MEDIUM SAND, LITTLE GRAVEL EL. 714.8 TO EL.710.3	0	4,000	120
SAND, BROWN, FINE, LITTLE SILT EL. 710.3 TO EL.709.3	32	0	120
SILT, BROWN, SOME CLAY, TRACE SAND AND GRAVEL EL. 709.3 TO EL.707.3	0	2,500	115
SAND, BROWN, FINE TO MEDIUM EL. 707.3 TO EL. 706.8	32	0	120
SILT, BROWN, SOME CLAY EL. 706.8 TO EL. 703.8	0	1,000	115
SILT, GRAY, LITTLE CLAY AND SAND EL. 703.8 AND BELOW	0	2,500	120
B-17			
SILT, BROWN, FINE TO MEDIUM SAND EL. 711.8 TO EL. 708.8	30	0	115
SILT, BROWN, SOME CLAY, LITTLE SAND EL. 708.8 TO EL. 705.8	0	3,000	120
SAND, BROWN, FINE TO MEDIUM, SOME SILT EL. 705.8 TO EL. 704.8	32	0	120
SILT, BROWN, SOME CLAY, TRACE SAND EL. 704.8 TO EL. 699.8	0	4,500	130
SAND, BROWN, FINE TO MEDIUM, SOME GRAVEL EL. 699.8 TO EL. 697.8	32	0	120
SILT, BROWN, LITTLE CLAY, TRACE SAND EL. 697.8 TO EL. 692.8	0	2,000	115
SAND AND GRAVEL, GRAY, FINE TO COARSE EL. 692.8 TO EL. 689.8	33	0	125
CLAY, BROWN/GRAY EL. 689.8 AND BELOW	0	4,500	125
B-14			
SILT, SOME CLAY, LITTLE SAND EL. 705.1 TO EL. 697.1	0	2,000	120
SAND, BROWN, FINE TO MEDIUM, SOME SILT EL. 697.1 TO EL. 694.1	31	0	115
SILT, BROWN EL. 694.1 TO EL. 692.1	0	1,500	120
SAND, GRAY, FINE, SOME SILT EL. 692.1 TO EL. 688.1	31	0	115
SILT, GRAY, SOME FINE TO MEDIUM SAND AND GRAVEL EL. 688.1 TO EL. 681.1	32	0	120
CLAY, GRAY, TRACE OF SILT EL. 681.1 TO EL. 677.6	0	4,500	125
SILT, GRAY, SOME FINE TO COARSE SAND, SOME GRAVEL EL. 677.6 AND BELOW	36	0	130

WALL EXTERNAL STABILITY EVALUATION

DIMENSIONS			
WALL HEIGHT (FEET)[1]	10.5	21.5	27.9
EXPOSED WALL HEIGHT (FEET)	9.0	20.0	26.4
REINFORCEMENT LENGTH (FEET)	9.9	17.0	21.2
L/H	0.94	0.79	0.76
WALL STATION (WS)	11+00	12+12	13+50
BORING USED	B-16	B-17	B-14
CAPACITY TO DEMAND RATIO (CDR)[2]			
SLIDING (CDR > 1.0)	1.0	1.0	1.0
ECCENTRICITY (CDR > 1.0)	1.6	1.3	1.2
GLOBAL STABILITY (CDR > 1.0)	NA[3]	NA[3]	1.5
BEARING RESISTANCE (CDR > 1.0)	1.8	1.0	1.0
REQUIRED BEARING RESISTANCE (PSF)	6,000	7,000	9,000

1. THE WALL HEIGHT INCLUDES AN EMBEDMENT OF 1.5 FEET.
2. CDR REQUIREMENTS AND LOAD AND RESISTANCE FACTORS ARE PRESENTED IN CHAPTER 14 OF THE BRIDGE MANUAL.
3. NA NOT APPLICABLE, GLOBAL SLOPE STABILITY WAS EVALUATED AT THE CRITICAL WALL LOCATION

GEOMETRY TABLE

	WALL STATION	R/L STATION	OFFSET TO F.F. WALL	TOP OF WALL EL.	FINISHED GRADE EL.	EXISTING GRADE EL.	
SEGMENT A	9+98.40	400+48.42 'NS'	110.00' RT.	733.11	733.20	729.26	
	10+00.00	400+49.93 'NS'	110.06' RT.	733.12	733.21	729.15	
	10+10.00	400+59.38 'NS'	110.34' RT.	733.16	733.24	728.63	
	10+25.00	400+73.55 'NS'	110.77' RT.	733.23	731.79	727.88	
	10+50.00	400+97.17 'NS'	111.46' RT.	733.36	729.37	726.15	
	10+75.00	401+20.78 'NS'	112.13' RT.	733.48	726.95	723.58	
	10+79.62	401+25.14 'NS'	112.25' RT.	733.50	726.50	723.29	
	11+00.00	401+44.38 'NS'	112.77' RT.	733.61	724.58	721.83	
	11+25.00	401+67.98 'NS'	113.39' RT.	733.73	722.22	719.09	
	11+50.00	401+91.56 'NS'	113.99' RT.	733.85	719.86	716.71	
	11+75.00	402+15.15 'NS'	114.55' RT	733.94	717.49	714.53	
	12+00.00	402+38.72 'NS'	115.10' RT.	733.98	715.13	712.81	
	12+12.00	402+50.00 'NS'	115.35' RT.	733.99	714.00	712.55	
	12+25.00	402+62.29 'NS'	115.62' RT.	733.98	713.33	712.45	
	12+50.00	402+85.86 'NS'	116.11' RT.	733.94	712.04	712.15	
	12+75.00	403+09.42 'NS'	116.58' RT.	733.85	710.76	711.92	
	13+00.00	403+32.98 'NS'	117.03' RT.	733.72	709.47	709.74	
	13+18.44	403+50.34 'NS'	117.34' RT.	733.59	708.52	707.63	
SEGMENT B	13+18.44	403+50.34 'NS'	117.34' RT.	733.59	708.52	707.63	
	13+25.00	403+56.53 'NS'	117.45' RT.	733.54	708.18	706.88	
	13+38.80	403+69.34 'NS'	117.67' RT.	733.43	707.47	706.29	
	13+38.80	403+69.34 'NS'	117.67' RT.	722.08	707.47	706.29	← AT B.F. ABUT. B-40-877
	13+50.00	403+80.54 'NS'	117.82' RT.	722.08	706.90	705.79	
	13+53.40	403+83.94 'NS' 51+17.78 'UC'	117.86' RT. 37.5' RT.	722.08	706.72	705.63	← WALL CORNER
SEGMENT C	13+53.40	403+83.94 'NS' 51+17.78 'UC'	117.86' RT. 37.5' RT.	722.08	706.72	705.63	
	13+75.00	50+95.03 'UC'	40.62' RT.	722.08	706.91	706.72	
	13+84.28	50+85.19 'UC'	41.74' RT.	722.08	707.01	707.73	← BEGIN COPING SLOPE
	13+91.33	50+77.68 'UC'	42.51' RT.	723.44	707.08	708.49	← END COPING SLOPE
	14+00.00	50+68.44 'UC'	43.33' RT.	723.44	707.17	709.43	
	14+25.00	50+41.65 'UC'	45.01' RT.	723.44	707.48	708.90	
	14+50.00	50+14.76 'UC'	45.65' RT.	723.44	707.93	708.70	
	14+71.62	49+91.49 'UC'	45.35' RT.	723.44	708.45	708.71	
SEGMENT D	14+71.62	49+91.49 'UC'	45.35' RT.	723.44	708.45	708.71	← TEMPORARY WIRE FACED MSE WALL
	14+75.00	49+87.86 'UC'	45.23' RT.	723.44	708.53	708.71	
	14+83.18	49+79.06 'UC'	44.87' RT.	723.44	708.78	708.87	
	14+83.18	49+79.06 'UC'	44.87' RT.	719.15	708.78	708.87	← MSE CLOSURE WALL
	15+00.00	49+61.04 'UC'	43.78' RT.	719.15	709.30	709.19	
	15+16.76	49+43.15 'UC'	42.22' RT.	719.15	709.92	709.65	
SEGMENT E	15+16.76	49+43.15 'UC'	42.22' RT.	719.15	709.92	709.65	← TEMPORARY WIRE FACED MSE WALL
	15+25.00	49+34.40 'UC'	41.28' RT.	719.15	710.22	709.88	
	15+50.00	49+08.02 'UC'	37.76' RT.	719.15	711.27	711.61	
	15+62.44	215+28.49 'NSSB' 48+95.02 'UC'	64.95' LT. 35.63' RT.	719.15	711.86	712.18	← WALL CORNER

STAGE 1 CONS. | STAGE 2 CONS. | STAGE 3 CONS.

	WALL STATION	R/L STATION	OFFSET TO F.F. WALL	TOP OF WALL EL.	FINISHED GRADE EL.	EXISTING GRADE EL.	
SEGMENT F	15+62.44	215+28.49 'NSSB' 48+95.02 'UC'	64.95' LT. 35.63' RT.	719.15	711.86	712.18	← WALL CORNER
	15+70.26	215+20.40 'NSSB' 48+91.78 'UC'	64.95' LT. 42.84' RT.	719.15	714.50	714.63	← AT B.F. ABUT. B-40-876
	15+70.26	215+20.40 'NSSB' 48+91.78 'UC'	64.95' LT. 42.84' RT.	726.70	714.50	714.63	
	15+75.00	215+15.49 'NSSB'	64.95' LT.	726.59	716.19	716.21	
	15+89.26	215+00.74 'NSSB'	64.95' LT.	726.28	718.57	717.73	
SEGMENT G	15+89.26	215+00.74 'NSSB'	64.95' LT.	726.28	718.57	717.73	
	16+00.00	214+89.62 'NSSB'	64.95' LT.	726.05	720.37	718.88	
	16+25.00	214+63.75 'NSSB'	64.95' LT.	725.52	724.57	720.32	
	16+30.00	214+58.57 'NSSB'	64.95' LT.	725.41	725.41	719.49	
	16+42.44	214+45.70 'NSSB'	64.95' LT.	725.14	725.15	720.41	

Addendum No. 03
ID 1060-33-84
Revised Sheet 2180
September 24, 2020

9/22/20

NO.	DATE	REVISION	BY
1	9/22/20	UPDATED WALL STABILTY TABLE	DLM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-561

DRAWN BY DLM | PLANS CK'D. BLB

WALL DATA

SHEET 5

2180

SCALE = 10.00

STATE PROJECT NUMBER
1060-33-84

GEOMETRY TABLE

	WALL STATION	R/L STATION	OFFSET TO F.F. WALL	TOP OF WALL EL.	FINISHED GRADE EL.	EXISTING GRADE EL.	
SEGMENT A	11+60.94	224+98.67 'NSSB'	64.95' LT.	720.79	720.81	716.91	
	11+70.00	224+89.61 'NSSB'	64.95' LT.	721.09	721.11	717.46	
	11+75.00	224+84.62 'NSSB'	64.95' LT.	721.25	720.37	717.59	
	12+00.00	224+59.62 'NSSB'	64.95' LT.	722.03	716.67	717.55	
	12+14.65	224+45.93 'NSSB'	64.95' LT.	722.43	714.57	717.46	
	12+25.00	224+35.59 'NSSB'	64.95' LT.	722.81	712.97	717.41	
	12+28.14	224+32.44 'NSSB'	64.95' LT.	723.02	712.50	717.09	← INLET *N2191
	12+50.00	224+10.59 'NSSB'	64.95' LT.	723.68	709.26	714.86	
	12+59.02	224+01.56 'NSSB'	64.95' LT.	724.07	707.93	712.66	
SEGMENT B	12+59.02	224+01.56 'NSSB'	64.95' LT.	724.07	707.93	712.66	
	12+75.00	223+85.59 'NSSB	64.95' LT.	724.51	705.56	708.75	
	12+78.14	223+82.45 'NSSB	64.95' LT.	724.68	705.27	708.10	← AT B.F. WEST ABUT. B-40-876
	12+78.14	223+82.45 'NSSB	64.95' LT.	716.16	705.27	708.10	
	12+85.94	223+74.64 'NSSB'	64.95' LT.	716.16	704.55	706.48	← WALL CORNER
SEGMENT C	12+85.94	223+74.64 'NSSB'	64.95' LT.	716.16	704.55	706.48	
	13+00.00	411+94.38 'NS'	74.18' LT.	716.16	704.65	706.99	
	13+25.00	412+04.80 'NS'	51.46' LT.	716.16	704.83	707.97	
	13+34.94	412+08.95 'NS'	42.41' LT.	716.16	704.90	708.09	← TEMPORARY WIRE FACED MSE WALL
SEGMENT D	13+34.94	412+08.95 'NS'	42.41' LT.	716.16	704.90	708.09	
	13+50.00	412+15.23 'NS'	28.73' LT.	716.16	705.00	708.26	
	13+73.66	412+25.10 'NS'	7.22' LT	716.16	705.17	708.61	← BEGIN SLOPE
	13+75.00	412+25.65 'NS'	6.01' LT	716.27	705.18	708.63	
	13+83.66	412+29.27 'NS'	1.87' RT.	716.98	705.24	708.77	← END SLOPE
							← TEMPORARY WIRE FACED MSE WALL
SEGMENT E	13+83.66	412+29.27 'NS'	1.87' RT.	716.98	705.24	708.77	
	13+84.42	412+29.59 'NS'	2.56' RT.	716.98	705.24	708.78	
	14+00.00	412+36.08 'NS'	16.71' RT.	716.98	705.35	709.03	
	14+25.00	412+46.50 'NS'	39.44' RT.	716.98	705.53	709.39	
	14+50.00	412+56.93 'NS'	62.16' RT.	716.98	705.71	709.68	
	14+70.66	412+65.55 'NS'	80.95' RT	716.98	706.00	712.92	← WALL CORNER
SEGMENT F	14+70.66	412+65.55 'NS'	80.95' RT	716.98	706.00	712.92	
	14+75.00	412+69.88 'NS'	80.95' RT	716.98	706.06	714.07	
	14+78.12	412+73.01 'NS'	80.95' RT	716.98	706.27	714.56	← AT B.F. WEST ABUT. B-40-875
	14+78.12	412+73.01 'NS'	80.95' RT	724.39	706.27	714.56	
	14+95.04	412+89.93 'NS'	80.95' RT	723.69	707.38	717.19	
	14+96.71	412+91.60 'NS'	80.95' RT	723.59	707.49	717.43	
SEGMENT G	14+96.71	412+91.60 'NS'	80.95' RT	723.59	707.49	717.43	
	15+00.00	412+94.89 'NS'	81.00' RT.	723.39	707.71	717.91	
	15+19.67	600+25.29 'NSNB'	64.95' RT.	722.58	710.53	717.36	← INLET *N2199
	15+25.00	600+30.61 'NSNB'	64.95' RT.	722.36	711.29	717.21	
	15+50.00	600+55.61 'NSNB'	64.95' RT.	721.38	714.87	716.57	
	15+75.00	600+80.61 'NSNB'	64.95' RT.	720.39	718.45	716.23	
	15+85.66	600+91.27 'NSNB'	64.95' RT.	719.98	719.98	716.07	
	15+95.66	601+01.27 'NSNB'	64.95' RT.	719.58	719.58	716.09	

STAGE 1 CONS.

STAGE 3 CONS.

STAGE 2 CONS.

SOIL PARAMETERS

SOIL DESCRIPTION	FRICTION ANGLE (DEGREES)	COHESION (PSF)	UNIT WEIGHT (PCF)
GRANULAR BACKFILL WITHIN THE WALL IN THE REINFORCING ZONE	30	0	120
FILL BEHIND/BELOW THE REINFORCING ZONE	31	0	120
B-4			
SILT, BROWN, SOME CLAY, LITTLE SAND AND GRAVEL EL. 704.3 TO EL. 698.3	0	1,000	110
SILT, SOME GRAVEL, LITTLE SAND EL. 698.3 TO EL. 695.3	0	2,000	115
SAND AND GRAVEL, FINE TO COARSE EL. 695.3 TO EL. 692.3	32	0	120
CLAY, GRAY, SOME SILT EL. 692.3 TO EL. 689.3	0	750	110
SAND AND GRAVEL, FINE TO COARSE EL. 689.3 TO EL. 682.3	33	0	125
CLAY, GRAY, SOME SILT EL. 682.3 TO EL. 678.3	0	4,500	125
SILT, SOME FINE TO MEDIUM SAND, SOME GRAVEL EL. 678.3 AND BELOW	0	4,500	135
B-9			
SAND AND GRAVEL, FINE TO COARSE EL. 708.2 TO EL. 697.2	32	0	125
CLAY, GRAY, SOME SILT EL. 697.2 TO EL. 694.2	0	2,500	120
SAND AND GRAVEL, FINE TO COARSE EL. 694.2 TO EL. 691.2	33	0	125
CLAY, GRAY, SOME SILT EL. 691.2 TO EL. 680.2	0	3,500	125
CLAY, GRAY, SOME SILT EL. 680.2 TO EL. 679.2	0	3,000	135
COBBLES, FINE TO COARSE GRAVEL EL. 679.2 TO EL. 675.2	36	0	135
SAND AND GRAVEL, BROWN, FINE TO COARSE, COBBLES EL. 675.2 AND BELOW	36	0	135

WALL EXTERNAL STABILITY EVALUATION

DIMENSIONS		
WALL HEIGHT (FEET)[1]	20.5	17.2
EXPOSED WALL HEIGHT (FEET)	19.0	15.7
REINFORCEMENT LENGTH (FEET)	16.4	12.0
L/H	0.80	0.70
WALL STATION (WS)	12+75	15+00
BORING USED	B-4	B-9
CAPACITY TO DEMAND RATIO (CDR)[2]		
SLIDING (CDR > 1.0)	1.0	1.0
ECCENTRICITY (CDR > 1.0)	1.3	1.2
GLOBAL STABILITY (CDR > 1.0)	1.05	NA[3]
BEARING RESISTANCE (CDR > 1.0)	1.1	1.3
REQUIRED BEARING RESISTANCE (PSF)	7,000	7,000

1. THE WALL HEIGHT INCLUDES AN EMBEDMENT OF 1.5 FEET.
2. CDR REQUIREMENTS AND LOAD AND RESISTANCE FACTORS ARE PRESENTED IN CHAPTER 14 OF THE BRIDGE MANUAL.
3. NA NOT APPLICABLE, GLOBAL SLOPE STABILITY WAS EVALUATED AT THE CRITICAL WALL LOCATION

Addendum No. 03
ID 1060-33-84
Revised Sheet 2197
September 24, 2020

9/22/20

NO.	DATE	REVISION	BY
1	9/22/20	UPDATED WALL STABILITY TABLE	DLM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-564

DRAWN BY DLM | PLANS CK'D. BLB

WALL DATA

SHEET 5

2197

SCALE = 10.00

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTALS
206.3000	EXCAVATION FOR STRUCTURES RETAINING WALLS R-40-576	LS	1
502.0110.S	CONCRETE MASONRY SOLDIER PILE FOOTINGS	CY	518
502.3200	PROTECTIVE SURFACE TREATMENT	SY	23
504.0500	CONCRETE MASONRY RETAINING WALLS	CY	1,027
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	100,355
506.0605	STRUCTURAL STEEL HS	LB	341,900
506.3010	WELDED STUD SHEAR CONNECTORS 7/8X5-INCH	EACH	4,264
513.2001	RAILING PIPE R-40-576	LF	750
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	46
517.0600	PAINTING EPOXY SYSTEM R-40-576	LS	1
517.1010.S	CONCRETE STAINING R-40-576	SF	18,565
517.1050.S	ARCHITECTURAL SURFACE TREATMENT R-40-576	SF	15,225
SPV.0035	LIGHTWEIGHT FOAMED CONCRETE FILL	CY	402
SPV.0060	ANCHOR ASSEMBLIES NOISE BARRIER STRUCTURES R-40-576	EACH	19
SPV.0060	TIEBACK ANCHORS	EACH	176
SPV.0060	TIEBACK ANCHORS PERFORMANCE TESTS	EACH	9
SPV.0075	OBSTRUCTIONS FOUNDATION DRILLING	HRS	15
SPV.0090	PIPE UNDERDRAIN 6-INCH SPECIAL	LF	1,135
SPV.0090	FOUNDATION DRILLING	LF	4,755
SPV.0090	FENCE DECORATIVE WALL	LF	127
SPV.0110	TIMBER LAGGING	MBM	52
SPV.0165	GEOCOMPOSITE DRAIN BOARD	SF	15,690
	NON-BID ITEMS		
	FILLER		

HORIZONTAL CURVE DATA

WALL CURVE 1

P.I. = 14+94.09
Δ = 3°-23'-55"
D = 1°-55'-12"
T = 88.53'
L = 177.00'
R = 2984.00'
P.C. = 14+05.57
P.T. = 15+82.57

WALL CURVE 2

P.I. = 19+70.72
Δ = 12°-50'-56"
D = 17°-58'-56"
T = 35.88'
L = 71.45'
R = 318.62'
P.C. = 19+40.99
P.T. = 20+12.45

WALL CURVE 3

P.I. = 20+48.11
Δ = 12°-52'-25"
D = 18°-07'-37"
T = 35.66'
L = 71.02'
R = 316.08'
P.C. = 20+12.45
P.T. = 20+83.46

WALL CURVE 4

P.I. = 21+09.21
Δ = 9°-19'-23"
D = 18°-8'-57"
T = 25.74'
L = 51.37'
R = 315.70'
P.C. = 20+83.46
P.T. = 21+34.83

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 EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE SHOWN OR NOTED.

ALL DIMENSIONS ARE ALONG THE FRONT FACE OF WALL UNLESS OTHERWISE SHOWN OR NOTED.

THE GRADATION OF THE STRUCTURE BACKFILL SHALL MEET THE REQUIREMENTS OF SECTION 209.2.2 OF THE STANDARD SPECIFICATIONS FOR GRADE 1 MATERIAL.

THE EXISTING GROUND LINE SHALL BE USED AS THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES RETAINING WALLS R-40-576".

THE CONTRACTOR MUST COORDINATE THE CONSTRUCTION OF WALL R-40-576 WITH THE CONSTRUCTION OF THE EAST ABUTMENT OF BRIDGE B-40-879 AND SIGN STRUCTUER S-40-71.

SEE SPECIAL PROVISIONS FOR AESTHETIC TREATMENT TO WALL.

BACKFILL ALL SPACES AT THE BACK FACE AND NOT OCCUPIED BY THE NEW STRUCTURE/ROADWAY WITH FLOWABLE BACKFILL OR CONTROLLED LOW STRENGTH MATERIAL (CLSM). WHERE COMPACTION WITH SMALL WALK BEHIND EQUIPMENT AT THE BACKFACE OF WALL CAN REASONABLY BE ACCOMPLISHED AS DETERMINED BY THE ENGINEER, STRUCTURE BACKFILL IN ACCORDANCE WITH SECTION 210 OF THE STANDARD SPECIFICATIONS MAY BE USED AT THE CONTRACTORS OPTION. ALL BACKFILL MATERIAL AND WORK IS INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES RETAINING WALLS R-40-576".

EXISTING STRUCTURES ARE NOT SHOWN IN THESE PLANS. THE REMOVAL OF THESE STRUCTURES IS INCLUDED IN A LUMP SUM PAY ITEM AS PART OF THE B-40-879 BRIDGE QUANTITIES.

WALL ANCHOR SLAB, COPING & PARAPET EXPANSION JOINTS TO MATCH ALL WALL FACING EXPANSION & CONTRACTION JOINTS.

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 DETERMINATION AS TO TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE TOP HORIZONTAL SURFACE OF THE ANCHOR SLAB COPING ADJACENT TO PARAPETS ONLY.

SOLDIER PILE WALL NOTES

THE QUANTITY OF CAST-IN-PLACE CONCRETE MASONRY FOR THE SOLDIER PILE WALL COPING, CAST-IN-PLACE CONCRETE FACING, ANCHOR SLAB AND PARAPET IS PAID FOR UNDER THE ITEM "CONCRETE MASONRY RETAINING WALLS".

THE VOLUME OF EARTHWORK REQUIRED TO INSTALL THE ANCHOR SLAB, SOLDIER PILES AND FOOTINGS IS INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES RETAINING WALLS R-40-576". AFTER WALL SOLDIER PILE CONSTRUCTION HAS BEEN COMPLETED, ALL EARTHWORK IN FRONT OF THE RETAINING WALL IS PAID FOR UNDER THE ROADWAY ITEM "COMMON EXCAVATION". SEE ROADWAY PLAN FOR EXCAVATION LIMITS.

FLOWABLE BACKFILL AND CLSM ARE INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES RETAINING WALLS R-40-576". SEE SPECIAL PROVISIONS FOR DESCRIPTION OF FLOWABLE BACKFILL AND CLSM.

SURFACE PREP AND PAINT SOLDIER PILES FROM TOP OF PILE TO 1'-0" BELOW TOP OF FOOTING WITH ONE COAT OF ZINC-RICH PRIMER AS SPECIFIED IN SECTION 517 OF THE STANDARD SPECIFICATIONS. WELDED STUD SHEAR CONNECTORS ARE NOT REQUIRED TO BE PAINTED. PAINTING OF PILES IS MEASURED AND PAID FOR AS BID ITEM NUMBER 517.0600, PAINTING EPOXY SYSTEM R-40-576.

FILL TO TOP OF SHAFT ELEVATION WHERE NEEDED TO PROVIDE WORKING SURFACE. FILL INCIDENTAL TO BID ITEM "CONCRETE MASONRY SOLDIER PILE FOOTINGS".

BACKFILL TO A MINIMUM OF 4'-0" BELOW THE TOP OF WALL ELEVATION PRIOR TO STRESSING TIEBACK ANCHORS. BACKFILL INCLUDED IN BID ITEM "EXCAVATION FOR STRUCTURES RETAINING WALLS R-40-576".

WHERE LIGHTWEIGHT FOAMED CONCRETE FILL (LFCF) IS USED BEHIND THE WALL, LFCF IS TO BE INSTALLED PRIOR TO STRESSING TIEBACK ANCHORS. DO NOT STRESS TIEBACK ANCHORS PRIOR TO LFCF OBTAINING THE SPECIFIED 28-DAY COMPRESSIVE STRENGTH.

Addendum No. 03
ID 1060-33-84
Revised Sheet 2344
September 24, 2020

9/23/20

NO.	DATE	REVISION	BY
1	9/18/20	ESTIMATED QUANTITIES	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-576

DRAWN BY WWR | PLANS CK'D. CAD

GENERAL NOTES & QUANTITIES

SHEET 4

2344

STATE PROJECT NUMBER
1060-33-84

8

8

SCALE = 1

SOLDIER PILE DATA TABLE (CONT.)

PILE NO.	WALL R/L STA	OFFSET LEFT	APPROX. EXISTING GRADE	FINISHED GRADE AT WALL FACE	FOUNDATION DRILLING LENGTH	TOP OF WALL	TOP OF SOLDIER PILE	TOP OF FOOTING	BOTTOM OF FOOTING	FOOTING LENGTH	FOOTING DIAMETER	SOLDIER PILE SECTION	SOLDIER PILE LENGTH	NO. OF SHEAR STUDS REQ'D	TIE BACK ELEV 1	TIE BACK ELEV 2	KNOWN OBSTRUCTION
71	15+28.75	1.73	772.30	759.91	29.64	779.82	778.32	756.66	742.66	14.00	2.5	HP14X73	35.66	42	772.82	765.82	
72	15+36.25	1.73	772.43	759.86	29.82	779.86	778.36	756.61	742.61	14.00	2.5	HP14X73	35.75	42	772.86	765.86	
73	15+43.75	1.73	772.57	759.82	32.00	779.90	778.40	756.57	742.57	16.00	2.5	HP14X73	37.83	44	772.90	765.90	
74	15+51.25	1.73	772.69	759.78	32.16	779.94	778.44	756.53	742.53	16.00	2.5	HP14X73	37.91	44	772.94	765.94	
75	15+58.75	1.73	772.75	759.76	32.24	779.97	778.47	756.51	742.51	16.00	2.5	HP14X73	37.96	44	772.97	765.97	
76	15+66.25	1.73	772.81	759.74	32.32	780.01	778.51	756.49	742.49	16.00	2.5	HP14X73	38.02	44	773.01	766.01	
77	15+73.75	1.73	772.87	759.72	32.40	780.04	778.54	756.47	742.47	16.00	2.5	HP14X73	38.07	44	773.04	766.04	
78	15+81.25	1.73	772.98	759.71	32.52	780.08	778.58	756.46	742.46	16.00	2.5	HP14X73	38.13	44	773.08	766.08	
79	15+88.75	1.73	773.09	759.69	32.65	780.12	778.62	756.44	742.44	16.00	2.5	HP14X73	38.18	44	773.12	766.12	
80	15+96.25	1.73	773.20	759.67	32.78	780.16	778.66	756.42	742.42	16.00	2.5	HP14X73	38.24	44	773.16	766.16	
81	16+03.75	1.73	773.37	759.63	32.99	780.20	778.70	756.38	742.38	16.00	2.5	HP14X73	38.31	44	773.20	766.20	
82	16+11.25	1.73	773.60	759.58	33.26	780.23	778.73	756.33	742.33	16.00	2.5	HP14X73	38.40	44	773.23	766.23	
83	16+18.75	1.73	773.82	759.53	33.54	780.27	778.77	756.28	742.28	16.00	2.5	HP14X73	38.49	44	773.27	766.27	
84	16+26.25	1.73	774.06	759.48	33.83	780.31	778.81	756.23	742.23	16.00	2.5	HP14X73	38.57	44	773.31	766.31	
85	16+33.75	1.73	774.38	759.43	34.20	780.35	778.85	756.18	742.18	16.00	2.5	HP14X73	38.66	44	773.35	766.35	
86	16+41.25	1.73	774.70	759.39	34.56	780.38	778.88	756.14	742.14	16.00	2.5	HP14X73	38.75	44	773.38	766.38	
87	16+48.75	1.73	775.02	759.34	34.93	780.42	778.92	756.09	742.09	16.00	2.5	HP14X73	38.84	46	773.42	766.42	
88	16+56.25	1.73	775.24	759.29	35.21	780.46	778.96	756.04	742.04	16.00	2.5	HP14X73	38.92	46	773.46	766.46	
89	16+63.75	1.73	775.45	759.24	35.46	780.50	779.00	755.99	741.99	16.00	2.5	HP14X73	39.01	46	773.50	766.50	
90	16+71.25	1.73	775.66	759.19	35.72	780.53	779.03	755.94	741.94	16.00	2.5	HP14X73	39.10	46	773.53	766.53	
91	16+78.75	1.73	776.01	759.14	36.13	780.57	779.07	755.89	741.89	16.00	2.5	HP14X73	39.18	46	773.57	766.57	
92	16+86.25	1.73	776.52	759.09	36.68	780.61	779.11	755.84	741.84	16.00	2.5	HP14X73	39.27	46	773.61	766.61	
93	16+93.75	1.73	777.03	759.04	37.24	780.65	779.15	755.79	741.79	16.00	2.5	HP14X73	39.36	46	773.65	766.65	
94	17+01.25	1.73	777.47	758.99	37.72	780.69	779.19	755.74	741.74	16.00	2.5	HP14X73	39.44	46	773.69	766.69	
95	17+08.75	1.73	777.56	758.94	37.87	780.72	779.22	755.69	741.69	16.00	2.5	HP14X73	39.53	46	773.72	766.72	
96	17+16.25	1.73	777.65	758.89	38.01	780.76	779.26	755.64	741.64	16.00	2.5	HP14X73	39.62	46	773.76	766.76	
97	17+23.75	1.73	777.74	758.84	38.16	780.79	779.29	755.59	741.59	16.00	2.5	HP14X73	39.71	46	773.79	766.79	
98	17+31.25	1.73	778.25	758.75	38.74	780.83	779.33	755.50	741.50	16.00	2.5	HP14X73	39.83	48	773.83	766.83	
99	17+38.75	1.73	778.83	758.66	39.42	780.87	779.37	755.41	741.41	16.00	2.5	HP14X73	39.96	48	773.87	766.87	
100	17+46.25	1.73	779.41	758.57	39.59	780.91	779.41	755.32	741.32	16.00	2.5	HP14X73	40.09	48	773.91	766.91	
101	17+53.75	1.73	779.53	758.52	39.68	780.95	779.45	755.27	741.27	16.00	2.5	HP14X73	40.18	48	773.95	766.95	
102	17+61.25	1.73	779.18	758.52	39.71	780.98	779.48	755.27	741.27	16.00	2.5	HP14X73	40.21	48	773.98	766.98	
103	17+68.75	1.73	779.16	758.47	39.78	781.00	779.50	755.22	741.22	16.00	2.5	HP14X73	40.28	48	774.00	767.00	
104	17+76.53	1.73	779.17	758.39	32.74	771.88	770.38	755.14	737.14	18.00	2.5	HP14X73	33.24	30	765.88	-	
105	17+84.03	1.73	778.90	758.33	32.80	771.88	770.38	755.08	737.08	18.00	2.5	HP14X73	33.30	30	765.88	-	
106	17+91.53	1.73	778.63	758.26	32.87	771.88	770.38	755.01	737.01	18.00	2.5	HP14X73	33.37	30	765.88	-	
107	17+99.03	1.73	778.35	758.20	32.93	771.88	770.38	754.95	736.95	18.00	2.5	HP14X73	33.43	30	765.88	-	
108	18+06.53	1.73	778.37	758.15	32.98	771.88	770.38	754.90	736.90	18.00	2.5	HP14X73	33.48	30	765.88	-	
109	18+14.03	1.73	778.44	758.10	33.03	771.88	770.38	754.85	736.85	18.00	2.5	HP14X73	33.53	30	765.88	-	
110	18+21.53	1.73	778.50	758.05	33.08	771.88	770.38	754.80	736.80	18.00	2.5	HP14X73	33.58	30	765.88	-	
111	18+29.03	1.73	778.64	758.00	33.13	771.88	770.38	754.75	736.75	18.00	2.5	HP14X73	33.63	30	765.88	-	
112	18+36.84	1.73	778.77	757.94	37.52	779.96	775.71	754.69	740.69	17.00	2.5	HP14X73	38.02	42	768.46	762.46	
113	18+44.34	1.73	778.82	757.89	37.08	779.47	775.22	754.64	740.64	17.00	2.5	HP14X73	37.58	40	767.97	761.97	PROP. SANITARY SEWER☆
114	18+51.84	1.73	778.72	757.84	36.64	778.98	774.73	754.59	740.59	17.00	2.5	HP14X73	37.14	40	767.48	761.48	PROP. SANITARY SEWER☆
115	18+59.34	1.73	778.17	757.78	36.21	778.49	774.24	754.53	740.53	17.00	2.5	HP14X73	36.71	38	766.99	760.99	
116	18+66.84	1.73	777.62	757.73	35.77	778.00	773.75	754.48	740.48	17.00	2.5	HP14X73	36.27	38	766.50	760.50	
117	18+74.34	1.73	777.07	757.67	35.34	777.51	773.26	754.42	740.42	17.00	2.5	HP14X73	35.84	38	766.01	760.01	
118	18+81.84	1.73	776.63	757.62	34.90	777.02	772.77	754.37	740.37	17.00	2.5	HP14X73	35.40	36	765.52	759.52	
119	18+89.34	1.73	776.20	757.57	34.46	776.53	772.28	754.32	740.32	17.00	2.5	HP14X73	34.96	36	765.03	759.03	
120	18+96.84	1.73	775.77	757.51	34.02	776.04	771.79	754.26	740.26	17.00	2.5	HP14X73	34.52	34	764.54	758.54	
121	19+04.34	1.73	775.26	757.45	33.60	775.55	771.30	754.20	740.20	17.00	2.5	HP14X73	34.10	34	764.05	758.05	
122	19+11.84	1.73	774.69	757.38	31.17	775.05	770.80	754.13	740.13	15.00	2.5	HP14X73	31.67	32	765.05	-	
123	19+19.34	1.73	774.11	757.31	30.75	774.56	770.31	754.06	740.06	15.00	2.5	HP14X73	31.25	32	764.56	-	
124	19+26.84	1.73	773.52	757.24	30.33	774.07	769.82	753.99	739.99	15.00	2.5	HP14X73	30.83	32	764.07	-	
125	19+34.34	1.73	772.87	757.14	29.94	773.58	769.33	753.89	739.89	15.00	2.5	HP14X73	30.44	30	763.58	-	
126	19+41.84	1.73	772.22	757.04	28.55	773.09	768.84	753.79	739.79	14.00	2.5	HP14X73	29.05	30	763.09	-	
127	19+49.34	1.73	771.57	756.95	28.15	772.60	768.35	753.70	739.70	14.00	2.5	HP14X73	28.65	28	762.60	-	
128	19+56.84	1.73	771.13	756.80	27.84	772.14	767.89	753.55	739.55	14.00	2.5	HP14X73	28.34	28	762.14	-	
129	19+64.34	1.73	770.77	756.65	27.57	771.72	767.47	753.40	739.40	14.00	2.5	HP14X73	28.07	28	761.72	-	
130	19+71.84	1.73	770.42	756.50	27.30	771.30	767.05	753.25	730.25	14.00	2.5	HP14X73	27.80	28	761.30	-	
131	19+79.34	1.73	770.02	756.39	26.99	770.88	766.63	753.14	730.14	14.00	2.5	HP14X73	27.49	26	760.88	-	
132	19+86.84	1.73	769.59	756.29	26.66	770.45	766.20	753.04	730.04	14.00	2.5	HP14X73	27.16	26	760.45	-	EXIST. SANITARY SEWER**
133	19+94.34	1.73	769.16	756.20	26.33	770.03	765.78	752.95	729.95	14.00	2.5	HP14X73	26.83	26	760.03	-	
134	20+01.84	1.73	768.59	756.11	26.00	769.61	765.36	752.86	729.86	14.00	2.5	HP14X73	26.50	24	759.61	-	
135	20+09.34	1.73	767.60	756.01	34.68	769.18	764.93	752.76	731.76	21.00	2.5	HP14X73	33.18	24	762.18	-	
136	20+16.84	1.73	766.61	755.91	32.35	768.76	764.51	752.66	731.66	21.00	2.5	HP14X73	32.85	24	761.76	-	
137	20+24.34	1.73	765.63	755.81	32.03	768.34	764.09	752.56	731.56	21.00	2.5	HP14X73	32.53	22	761.34	-	EXIST. SANITARY SEWER**
138	20+31.84	1.73	764.65	755.70	31.71	767.91	763.66	752.45	731.45	21.00	2.5	HP14X73	32.21	22	760.91	-	EXIST. SANITARY SEWER**
139	20+39.34	1.73	763.67	755.60	32.32	767.49	765.99	752.35	731.35	21.00	2.5	HP14X73	34.64	26	760.49	-	
140	20+46.84	1.73	762.69	755.49	31.45	767.07	765.57	752.24	731.24	21.00	2.5	HP14X73	34.32	26	760.07	-	

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NOTES

ALL DIMENSIONS AND ELEVATIONS GIVEN IN FEET.

FOUNDATION DRILLING LENGTH BASED ON ELEVATION 6" BELOW TOP OF SOLDIER PILE OR EXISTING GRADE (WHEN EXIST. GRADE IS MORE THAN 6" LOWER THAN THE TOP OF SOLDIER PILE) TO THE BOTTOM OF FOOTING.

** EXISTING SANITARY SEWER IS TO BE ABANDONED. DRILL/CORE THROUGH AND CASE HOLE AS REQUIRED.

☆ PROPOSED SANITARY SEWER/CASING TO RUN BETWEEN INDICATED PILES. VERIFY LOCATION OF BORED SEWER CASING PRIOR TO FOUNDATION DRILLING. IF IT IS DETERMINED A CONFLICT EXISTS (DUE TO THE SEWER CASING BEING INSTALLED/BORED OUT OF ALIGNMENT), CONTACT THE STRUCTURES DESIGN SECTION FOR DIRECTION.

STATE PROJECT NUMBER

1060-33-84

Addendum No. 03
ID 1060-33-84
Revised Sheet 2348
September 24, 2020

9/23/20

NO.	DATE	REVISION	BY
⚠1	9/18/20	SHEAR STUDS/FOOTING LENGTH	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-576

DRAWN BY WWR | PLANS CK'D. CAD

SOLDIER PILE DATA TABLE 2

SHEET 8

2348

SCALE = 4.00

8

8

STATE PROJECT NUMBER
1060-33-84

SOLDIER PILE DATA TABLE (CONT.)

PILE NO.	WALL R/L STA	OFFSET LEFT	APPROX. EXISTING GRADE	FINISHED GRADE AT WALL FACE	FOUNDATION DRILLING LENGTH	TOP OF WALL	TOP OF SOLDIER PILE	TOP OF FOOTING	BOTTOM OF FOOTING	FOOTING LENGTH	FOOTING DIAMETER	SOLDIER PILE SECTION	SOLDIER PILE LENGTH	1 NO. OF SHEAR STUDS REQ'D	TIE BACK ELEV 1	TIE BACK ELEV 2	KNOWN OBSTRUCTION
141	20+54.34	1.73	761.82	755.39	30.68	766.25	764.75	752.14	731.14	21.00	2.5	HP14X73	33.62	24	760.25	-	
142	20+61.84	1.73	761.03	755.27	30.00	765.16	763.66	752.02	731.02	21.00	2.5	HP14X73	32.63	22	759.16	-	
143	20+69.34	1.87	760.23	755.16	32.32	764.06	762.56	751.91	727.91	24.00	3.0	W21X55	34.65	10	-	-	
144	20+76.84	1.87	759.55	755.05	31.75	762.96	761.46	751.80	727.80	24.00	3.0	W21X55	33.66	9	-	-	
145	20+84.34	1.87	759.22	754.95	31.52	761.86	760.36	751.70	727.70	24.00	3.0	W21X55	32.67	8	-	-	
146	20+91.84	1.75	758.89	754.84	25.18	760.76	759.26	751.59	733.59	18.00	2.5	W18X40	25.68	7	-	-	
147	20+99.34	1.75	758.56	754.73	24.19	759.67	758.17	751.48	733.48	18.00	2.5	W18X40	24.69	6	-	-	
148	21+06.84	1.75	758.51	754.57	23.24	758.57	757.07	751.32	733.32	18.00	2.5	W18X40	23.74	5	-	-	
149	21+14.34	1.75	758.48	754.41	22.30	757.47	755.97	751.16	733.16	18.00	2.5	W18X40	22.80	5	-	-	
150	21+20.88	1.75	758.45	754.27	21.49	756.50	755.00	751.02	733.02	18.00	2.5	W18X40	21.99	4	-	-	
151	21+26.46	1.75	758.44	754.01	21.17	755.69	754.44	750.76	732.76	18.00	2.5	W18X40	21.67	3	-	-	
152	21+32.05	1.75	758.43	753.37	21.25	754.87	753.87	750.12	732.12	18.00	2.5	W18X40	21.75	3	-	-	

1 NO. OF SHEAR STUDS REQ'D

NOTES

ALL DIMENSIONS AND ELEVATIONS GIVEN IN FEET.

FOUNDATION DRILLING LENGTH BASED ON ELEVATION 6" BELOW TOP OF SOLDIER PILE OR EXISTING GRADE (WHEN EXIST. GRADE IS MORE THAN 6" LOWER THAN THE TOP OF SOLDIER PILE) TO THE BOTTOM OF FOOTING.

Addendum No. 03
ID 1060-33-84
Revised Sheet 2349
September 24, 2020

8

8

9/23/20

NO.	DATE	REVISION	BY
1	9/18/20	SHEAR STUDS	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-576

DRAWN BY: WWR | PLANS CK'D.: CAD

SOLDIER PILE DATA TABLE 3

SHEET 9

2349

SCALE = 4.00

STATE PROJECT NUMBER

1060-33-84

TIEBACK ANCHOR DATA TABLE

PILE NO.	TIEBACK NUMBER	⚠ TIEBACK ELEVATION	TIEBACK VERTICAL ORIENTATION (DEGRESS)	** TIEBACK HORIZONTAL ORIENTATION (DEGRESS)	* ESTIMATED BONDED ANCHOR LENGTH (FT)	MINIMUM UNBONDED ANCHOR LENGTH (FT)	FACTORED DESIGN LOAD (KIPS)	LOCK OFF LOAD (KIPS)	PROOF TEST LOAD (KIPS)
108	132	765.88	15	90	27	15	115	69	132
109	133	765.88	15	90	27	15	115	69	132
110	134	765.88	15	90	27	15	115	69	132
111	135	765.88	15	90	27	15	115	69	132
112	136	768.46	30	90	30	15	130	104	149
112	137	762.46	30	90	11	15	45	36	51
113	138	767.97	30	90	30	15	130	104	149
113	139	761.97	30	90	11	15	45	36	51
114	140	767.48	30	**95**	30	15	130	104	149
114	141	761.48	30	**95**	11	15	45	36	51
115	142	766.99	30	**92.5**	30	15	130	104	149
115	143	760.99	30	**92.5**	11	15	45	36	51
116	144	766.50	30	90	30	15	130	104	149
116	145	760.50	30	90	11	15	45	36	51
117	146	766.01	30	90	30	15	130	104	149
117	147	760.01	30	90	11	15	45	36	51
118	148	765.52	30	90	30	15	130	104	149
118	149	759.52	30	90	11	15	45	36	51
119	150	765.03	30	90	30	15	130	104	149
119	151	759.03	30	90	11	15	45	36	51
120	152	764.54	30	90	30	15	130	104	149
120	153	758.54	30	90	11	15	45	36	51
121	154	764.05	30	90	30	15	130	104	149
121	155	758.05	30	90	11	15	45	36	51
122	156	765.05	30	90	25	15	110	88	126
123	157	764.56	30	90	25	15	110	88	126
124	158	764.07	30	90	25	15	110	88	126
125	159	763.58	30	90	25	15	110	88	126
126	160	763.09	30	90	24	15	105	84	120
127	161	762.60	30	90	24	15	105	84	120
128	162	762.14	30	90	24	15	105	84	120
129	163	761.72	30	90	24	15	105	84	120
130	164	761.30	30	90	24	15	105	84	120
131	165	760.88	30	90	24	15	105	84	120
132	166	760.45	30	90	24	15	105	84	120
133	167	760.03	30	90	24	15	105	84	120
134	168	759.61	30	90	24	15	105	84	120
135	169	762.18	15	90	21	15	90	54	103
136	170	761.76	15	90	21	15	90	54	103
137	171	761.34	15	90	21	15	90	54	103
138	172	760.91	15	90	21	15	90	54	103
139	173	760.49	15	90	13	15	55	33	63
140	174	760.07	15	90	13	15	55	33	63
141	175	760.25	15	90	11	15	45	27	51
142	176	759.16	15	90	11	15	45	27	51

LEGEND

* ESTIMATED BONDED ANCHOR LENGTH BASED ON 8" DIA. ANCHOR AND AN ASSUMED UNIFORM, ULTIMATE BOND STRESS OF 2.0 KSF (PHI=1.0). MINIMUM BONDED ANCHOR LENGTH = 15'-0"

⚠ ELEVATION GIVEN AT FRONT FACE OF SOLDIER PILE

** HORIZONTAL ORIENTATION IS MEASURED FROM WALL R/L IN COUNTER-CLOCKWISE DIRECTION

Addendum No. 03
ID 1060-33-84
Revised Sheet 2352
September 24, 2020

8

8

9/23/20

NO.	DATE	REVISION	BY
⚠	9/18/20	TIEBACK LOADS	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-576

DRAWN BY | PLANS CK'D. CAD

WWR

TIEBACK ANCHOR DATA TABLE 2

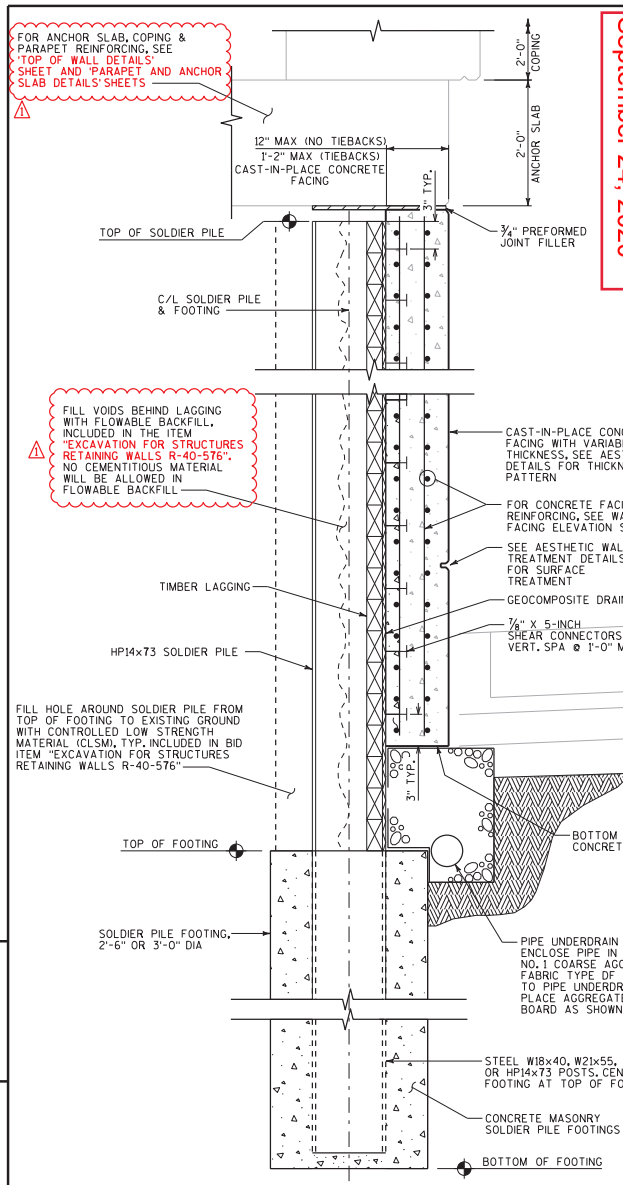
SHEET 12

2352

SCALE = 4.00

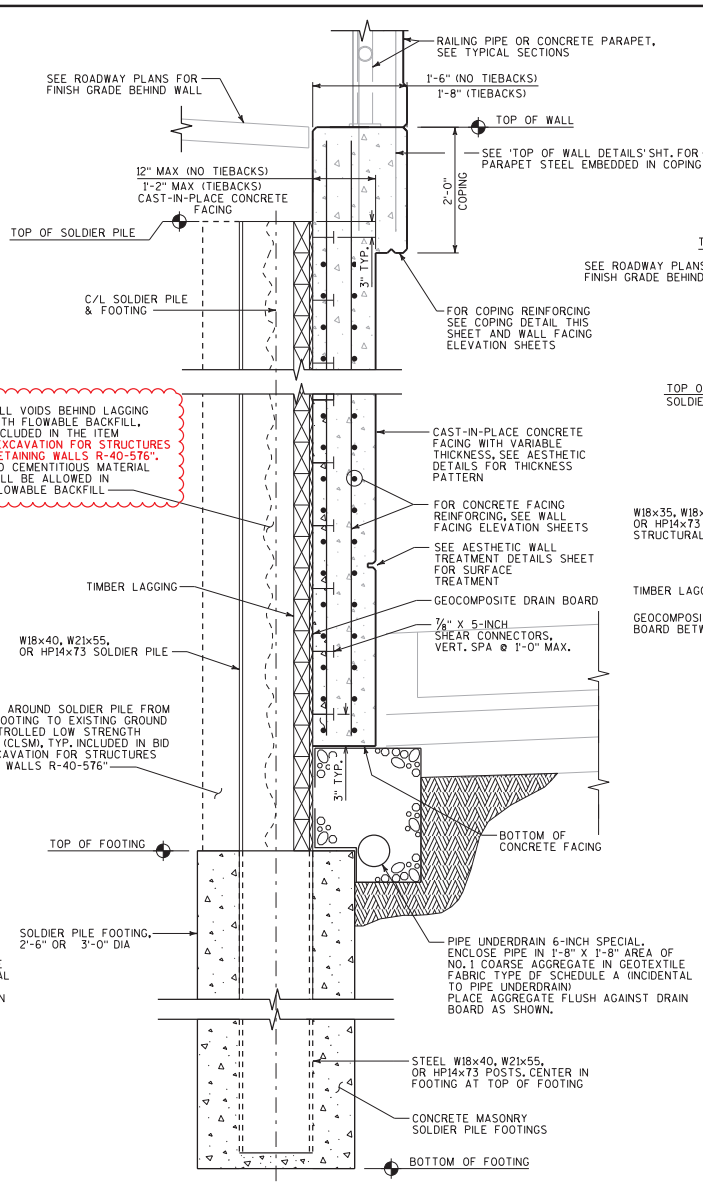
Addendum No. 03
ID 1060-33-84
Revised Sheet 2353
September 24, 2020

STATE PROJECT NUMBER
1060-33-84



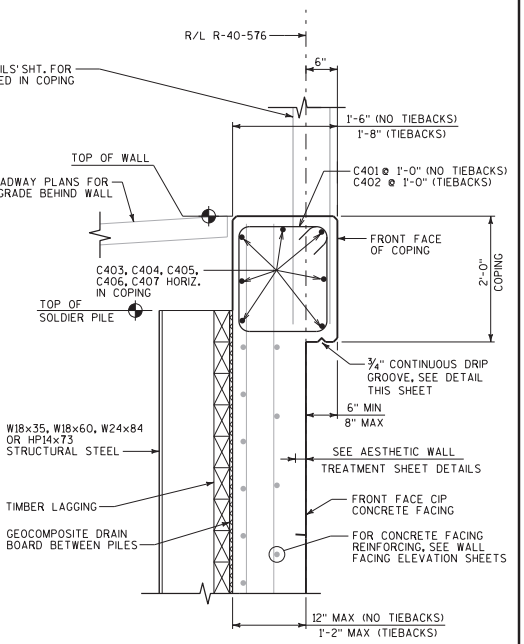
SOLDIER PILE AND WALL SECTION AT ANCHOR SLABS

(STA 18+33.19 TO STA 20+35.59)



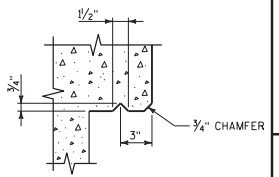
SOLDIER PILE AND WALL SECTION (NO ANCHOR SLABS)

(WALL STA. STA 10+00 TO STA 18+33.19)
(WALL STA 20+35.59 TO STA. 21+34.83)



COPING DETAIL

(WALL STA. STA 10+00 TO STA 18+33.19)
(WALL STA 20+35.59 TO STA. 21+34.83)



¾" CONTINUOUS DRIP GROOVE DETAIL

TERMINATE 2'-0" FROM ENDS OF WALL

NO.	DATE	REVISION	BY
1	9/18/20	UPDATE NOTES	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-576

DRAWN BY: WWR | PLANS CK'D.: CAD

COPING AND WALL FACING DETAILS 1

SHEET 13

2353

9/23/20

SCALE = 3.84

STATE PROJECT NUMBER
1060-33-84

BILL OF BARS - FACING

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
F401	X	62	2'-6"		⚠	VERTICAL-PANEL 1
F402	X	62	4'-2"		⚠	VERTICAL-PANEL 2
F403	X	62	6'-0"		⚠	VERTICAL-PANEL 3
F404	X	62	7'-5"		⚠	VERTICAL-PANEL 4
F405	X	62	8'-0"			VERTICAL-PANEL 5
F406	X	62	8'-10"			VERTICAL-PANEL 6
F407	X	62	9'-9"			VERTICAL-PANEL 7
F408	X	62	10'-8"			VERTICAL-PANEL 8
F409	X	62	11'-7"			VERTICAL-PANEL 9
F410	X	62	13'-1"		⚠	VERTICAL-PANEL 10
F411	X	62	14'-2"		⚠	VERTICAL-PANEL 11
F412	X	62	15'-3"		⚠	VERTICAL-PANEL 12
F413	X	62	16'-4"		⚠	VERTICAL-PANEL 13
F414	X	62	17'-6"		⚠	VERTICAL-PANEL 14
F415	X	62	18'-9"		⚠	VERTICAL-PANEL 15
F416	X	62	19'-11"		⚠	VERTICAL-PANEL 16
F417	X	62	20'-5"			VERTICAL-PANEL 17
F418	X	62	21'-4"			VERTICAL-PANEL 18
F419	X	62	21'-8"			VERTICAL-PANEL 19
F420	X	62	21'-11"			VERTICAL-PANEL 20
F421	X	62	22'-2"			VERTICAL-PANEL 21
F422	X	62	22'-6"			VERTICAL-PANEL 22
F423	X	62	22'-10			VERTICAL-PANEL 23
F424	X	62	23'-2"			VERTICAL-PANEL 24
F425	X	62	23'-6"			VERTICAL-PANEL 25
F426	X	46	24'-0"			VERTICAL-PANEL 26
F427	X	62	15'-1"			VERTICAL-PANEL 27
F428	X	62	15'-4"			VERTICAL-PANEL 28
F429	X	46	19'-2"		⚠	VERTICAL-PANEL 29
F430	X	62	17'-8"		⚠	VERTICAL-PANEL 30
F431	X	62	15'-11"		⚠	VERTICAL-PANEL 31
F432	X	62	14'-3"		⚠	VERTICAL-PANEL 32
F433	X	62	12'-10"		⚠	VERTICAL-PANEL 33
F434	X	62	11'-7"		⚠	VERTICAL-PANEL 34
F435	X	62	10'-4"		⚠	VERTICAL-PANEL 35
F436	X	62	12'-4"		⚠	VERTICAL-PANEL 36

⚠ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

BILL OF BARS - FACING (CONTINUED)

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
F437	X	62	9'-1"		⚠	VERTICAL-PANEL 37
F438	X	46	5'-8"		⚠	VERTICAL-PANEL 38
F439	X	36	3'-8"		⚠	VERTICAL-PANEL 39
F440	X	4	23'-7"			HORIZONTAL-PANEL 1
F441	X	2	12'-5"			HORIZONTAL-PANEL 1
F442	X	731	29'-8"			HORIZONTAL-PANELS 2-25, 36-37
F543	X	689	29'-8"			HORIZONTAL-PANELS 16-25, 30-35
F444	X	23	22'-0"			HORIZONTAL-PANEL 26
F545	X	45	22'-0"			HORIZONTAL-PANEL 26
F446	X	29	30'-1"			HORIZONTAL-PANEL 27, 28
F547	X	55	30'-1"			HORIZONTAL-PANEL 27, 28
F548	X	62	22'-1"			HORIZONTAL-PANEL 29
F449	X	17	22'-2"			HORIZONTAL-PANEL 38
F450	X	8	16'-5"			HORIZONTAL-PANEL 39

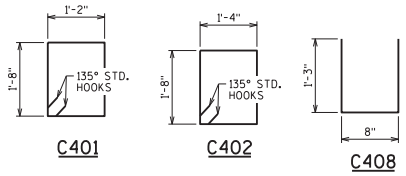
BILL OF BARS - COPING

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
C401	X	289	6'-2"	X		COPING-VERT. STIRRUP- NO TIEBACKS
C402	X	674	6'-6"	X		COPING-VERT. STIRRUP- TIEBACKS
C403	X	189	29'-8"			COPING-HORIZ.
C404	X	7	22'-0"			COPING-HORIZ. - PANEL 26
C405	X	14	30'-1"			COPING-HORIZ.-PANEL 27,28 ⚠
C406	X	7	22'-2"			COPING-HORIZ.-PANEL 38
C407	X	7	16'-5"			COPING-HORIZ.-PANEL 39
C408	X	17	3'-0"	X		VERTICAL COPING-HORIZ. U-BAR
C409	X	2	10'-7"			COPING-VERT.
C410	X	2	5'-11"			COPING-VERT.

BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
F401	2 SERIES OF 31	1'-8" TO 3'-3"
F402	2 SERIES OF 31	3'-3" TO 5'-1"
F403	2 SERIES OF 31	5'-1" TO 6'-10"
F404	2 SERIES OF 31	6'-10" TO 8'-0"
F410	2 SERIES OF 31	12'-7" TO 13'-7"
F411	2 SERIES OF 31	13'-7" TO 14'-8"
F412	2 SERIES OF 31	14'-8" TO 15'-9"
F413	2 SERIES OF 31	15'-9" TO 16'-10"
F414	2 SERIES OF 31	16'-10" TO 18'-1"
F415	2 SERIES OF 31	18'-1" TO 19'-4"
F416	2 SERIES OF 31	19'-4" TO 20'-6"
F429	2 SERIES OF 23	18'-6" TO 19'-10"
F430	2 SERIES OF 31	16'-9" TO 18'-6"
F431	2 SERIES OF 31	15'-0" TO 16'-9"
F432	2 SERIES OF 31	13'-5" TO 15'-0"
F433	2 SERIES OF 31	12'-3" TO 13'-5"
F434	2 SERIES OF 31	10'-11" TO 12'-3"
F435	2 SERIES OF 31	9'-8" TO 10'-11"
F436	2 SERIES OF 31	11'-0" TO 13'-8""
F437	2 SERIES OF 31	7'-1" TO 11'-0"
F438	2 SERIES OF 23	4'-3" TO 7'-1"
F439	2 SERIES OF 18	3'-1" TO 4'-3"

BUNDLE AND TAG EACH SERIES SEPARATELY.



Addendum No. 03
ID 1060-33-84
Revised Sheet 2358
September 24, 2020

9/23/20

NO.	DATE	REVISION	BY
⚠1	9/18/20	COPING BAR LOCATION	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-576

DRAWN BY WWR | PLANS CK'D. CAD

WALL FACING & COPING BILL OF BARS

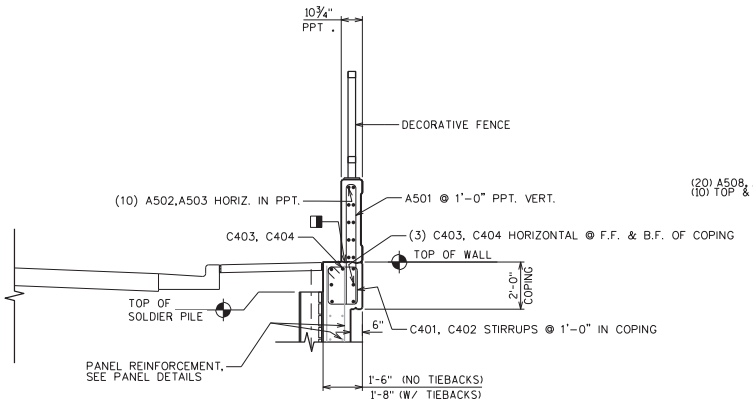
SHEET 18

2358

SCALE = 8.00

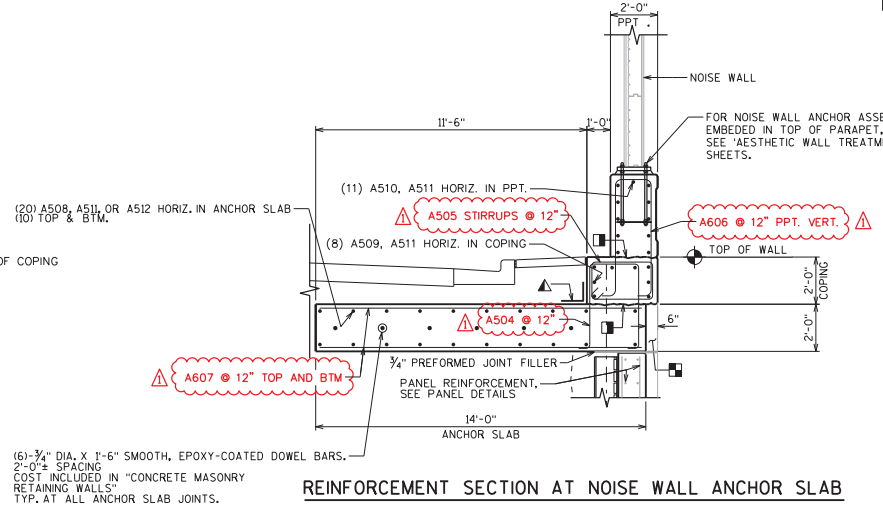
STATE PROJECT NUMBER
1060-33-84

Addendum No. 03
ID 1060-33-84
Revised Sheet 2359
September 24, 2020



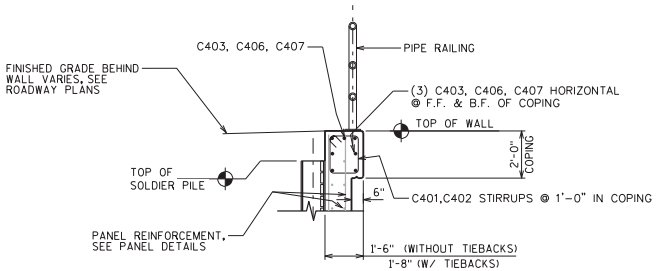
REINFORCEMENT SECTION AT PARAPET

STA 16+60 TO STA 17+72.34



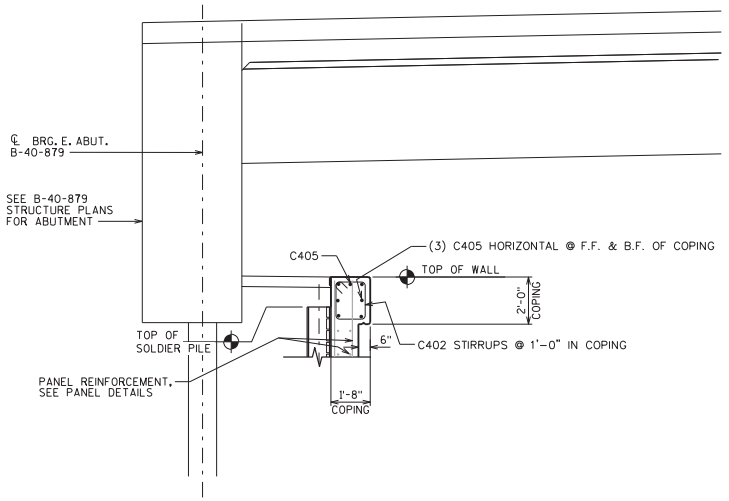
REINFORCEMENT SECTION AT NOISE WALL ANCHOR SLAB

STA 18+33.19 TO STA 20+35.59



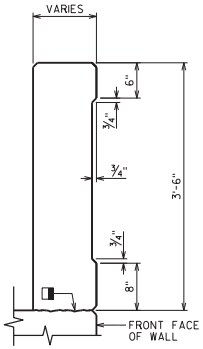
REINFORCEMENT SECTION AT PIPE RAIL

STA 10+00 TO STA 16+60
STA 20+35.59 TO END OF WALL (STA. 21+34.83)



REINFORCEMENT SECTION AT BRIDGE ABUTMENT

STA 17+72.34 TO STA 18+33.19



TYPICAL 42-INCH VERT. FACE PARAPET

LEGEND

- CONSTRUCTION JOINT. STRIKE OFF AS SHOWN AND LEAVE ROUGH.
- 18" L-SHAPED RUBBERIZED MEMBRANE WATERPROOFING ALONG HORIZONTAL CONSTRUCTION JOINT.
- PROVIDE VERTICAL COPING (1'-0" W X 6" D X 24" H) ON FRONT FACE OF ANCHOR SLAB TO MATCH VERTICAL COPING IN FACING PANEL *29 BELOW.

9/23/20

NO.	DATE	REVISION	BY
1	9/18/20	ANCHOR SLAB BAR SPACING	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-576

DRAWN BY	PLANS CK'D.
WWR	CAD

TOP OF WALL DETAILS

SHEET 19

2359

SCALE = 2.56

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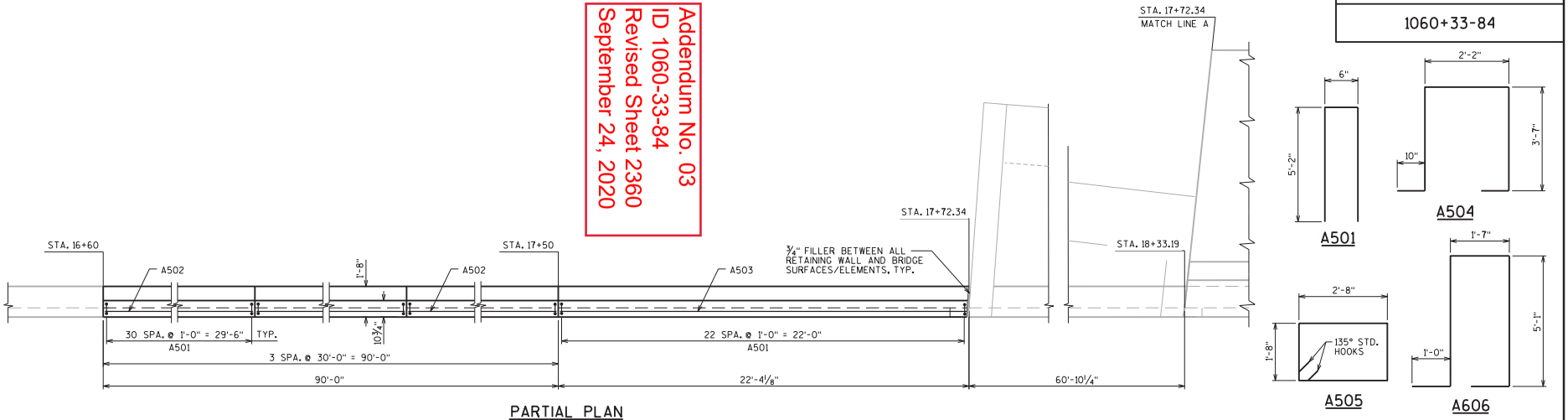
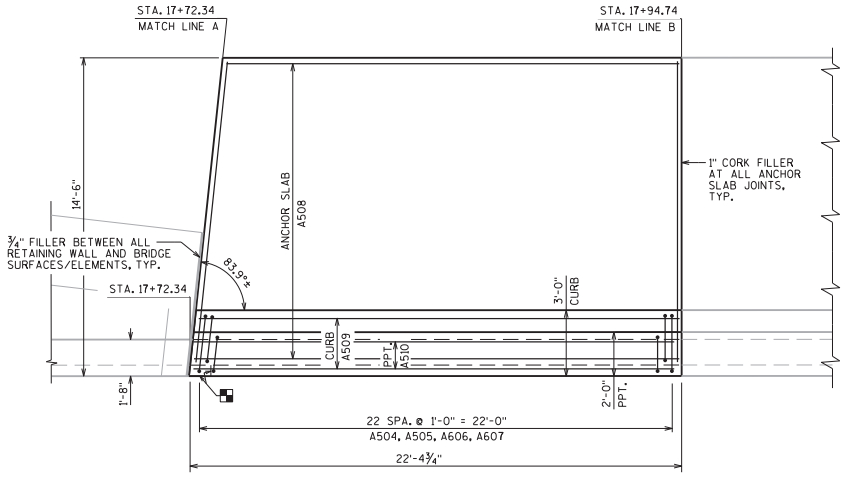
Addendum No. 03
ID 1060-33-84
Revised Sheet 2360
September 24, 2020

STATE PROJECT NUMBER
1060+33-84

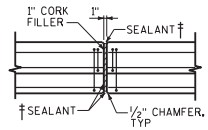


PARTIAL PLAN



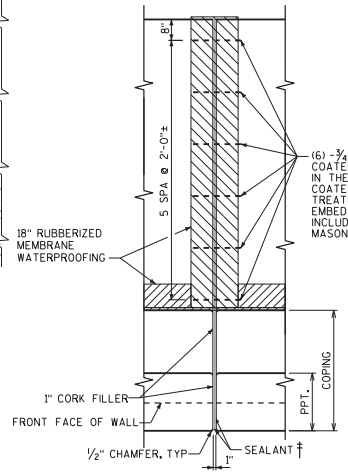
PARTIAL PLAN

▪ PROVIDE VERTICAL COPING (1'-0" W X 6" D X 24" H) ON FRONT FACE OF ANCHOR SLAB TO MATCH VERTICAL COPING IN FACING PANEL BELOW



PARAPET EXPANSION JOINT

NO NOT RUN BARS THRU JOINT. LOCATED AT ALL WALL FACING CONTRACTION AND EXPANSION JOINTS.



ANCHOR SLAB EXPANSION JOINT (PLAN VIEW)

DO NOT RUN BAR STEEL THRU JOINT, EXCEPT FOR DOWEL BARS AS SHOWN. FOR LOCATION OF JOINTS SEE GENERAL PLAN AND ELEVATION SHEETS. LOCATED AT ALL WALL FACING CONTRACTION AND EXPANSION JOINTS.

‡ 1" CORK FILLER WITH NON-BITUMINOUS JOINT SEALER. COLOR TO MATCH CONCRETE STAIN. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). SEAL ALL EXPOSED SURFACES OF PREFORMED JOINT FILLER OR CORK FILLER.

BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A501	X	116	10'-7"	X		COPING/PARAPET-VERT.
A502	X	30	29'-7"			PARAPET-HORIZ.
A503	X	10	22'-0"			PARAPET-HORIZ.
A504	X	209	10'-6"	X		ANCHOR SLAB/CURB-VERT.
A505	X	209	9'-4"	X		CURB-VERT.
A606	X	209	13'-1"	X		CURB/PARAPET-VERT.
⚠ A607	X	418	13'-8"			ANCHOR SLAB-HORIZ.-TRANS.
A508	X	20	21'-4"		⚠	ANCHOR SLAB-HORIZ.-LONGIT. (PANEL 29)
A509	X	8	21'-9"			CURB-HORIZ.-LONGIT. (PANEL 29)
A510	X	11	21'-11"			PARAPET-HORIZ.-LONGIT. (PANEL 29)
A511	X	174	29'-7"			ANCHOR SLAB, CURB, PPT.-HORIZ
A512	X	60	28'-11"		⚠	ANCHOR SLAB-HORIZ- AT CURVE

⚠ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
A508	2 SERIES OF 10	20'-7" TO 22'-0"
A508	6 SERIES OF 10	28'-3" TO 29'-7"

BUNDLE AND TAG EACH SERIES SEPARATELY.

NO.	DATE	REVISION	BY
⚠	9/18/20	BAR TABLE	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-576

DRAWN BY: WWR | PLANS CK'D.: CAD

PARAPET AND ANCHOR SLAB DETAILS 1

SHEET 20

2360

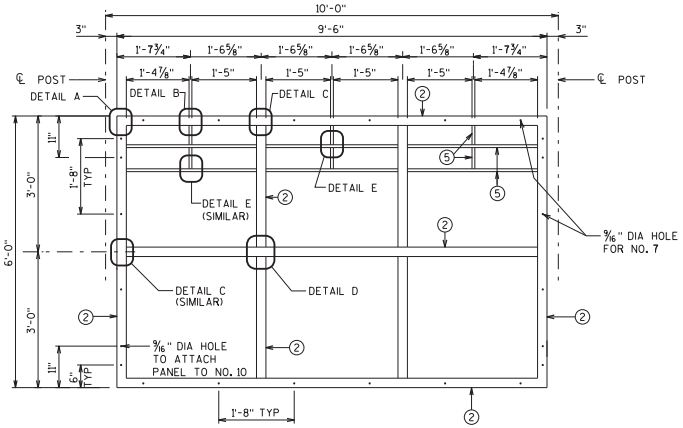
9/23/20

SCALE = 2.75

8

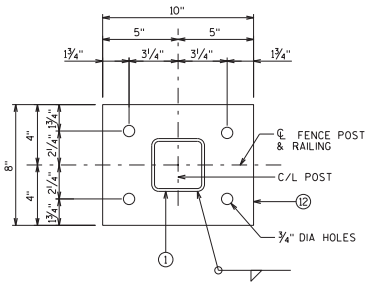
8

STATE PROJECT NUMBER
1060-33-84

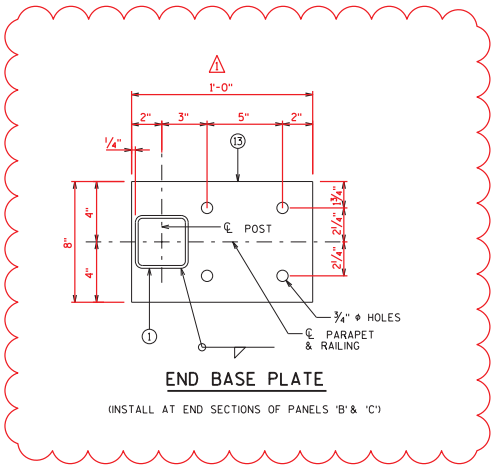


DECORATIVE FENCE BRIDGE PANEL

TYPICAL 10' PANEL SHOWN

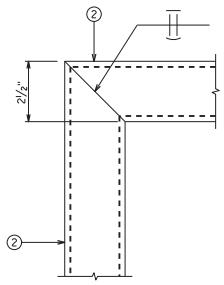


BASE PLATE DETAILS

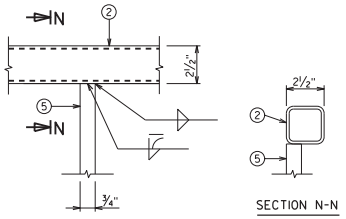


END BASE PLATE

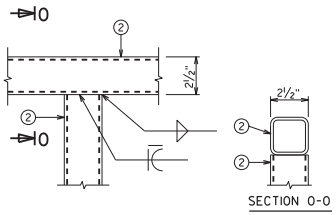
(INSTALL AT END SECTIONS OF PANELS 'B' & 'C')



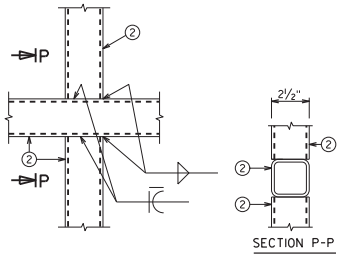
DETAIL A



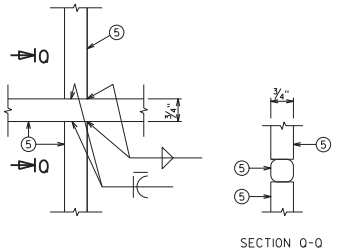
DETAIL B



DETAIL C



DETAIL D



DETAIL E

Addendum No. 03
ID 1060-33-84
Revised Sheet 2367
September 24, 2020

NOTES

FOR NOTES AND LEGEND, SEE FENCE DECORATIVE WALL (1 OF 3) SHEET.

DETAILS SHOWN ARE TYPICAL FOR ALL FENCE PANELS.

NO.	DATE	REVISION	BY
1	9/18/20	END BASE PLATE DIMS.	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-576

DRAWN BY PJR | PLANS CK'D. CAD

FENCE DECORATIVE WALL (3 OF 3)

SHEET 27

2367

9/23/20

SCALE = 1.00

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0002	201.0105 Clearing	139.000 STA	_____._____	_____._____
0004	201.0120 Clearing	909.000 ID	_____._____	_____._____
0006	201.0205 Grubbing	140.000 STA	_____._____	_____._____
0008	201.0220 Grubbing	909.000 ID	_____._____	_____._____
0010	203.0200 Removing Old Structure (station) 0001. STA. 123+50	LS	LUMP SUM	_____._____
0012	203.0200 Removing Old Structure (station) 0002. STA 433NS+99.67	LS	LUMP SUM	_____._____
0014	203.0200 Removing Old Structure (station) 0003. STA 621NSNB+00.00	LS	LUMP SUM	_____._____
0016	203.0200 Removing Old Structure (station) 0004. STA. 417NS+50	LS	LUMP SUM	_____._____
0018	203.0200 Removing Old Structure (station) 0005. STA. 418NS+15	LS	LUMP SUM	_____._____
0020	203.0200 Removing Old Structure (station) 0006. STA. 22RDE+37	LS	LUMP SUM	_____._____
0022	203.0200 Removing Old Structure (station) 0007. STA. 20+07.0	LS	LUMP SUM	_____._____
0024	203.0200 Removing Old Structure (station) 0008. STA. 15TRDE+54	LS	LUMP SUM	_____._____
0026	203.0200 Removing Old Structure (station) 0009. STA. 114NO+00	LS	LUMP SUM	_____._____
0028	203.0210.S Abatement of Asbestos Containing Material (structure) 0001. B-40-137	LS	LUMP SUM	_____._____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0030	203.0210.S Abatement of Asbestos Containing Material (structure) 0004. B-40-259	LS	LUMP SUM	_____.____
0032	203.0225.S Debris Containment (structure) 0001. B-40-138	LS	LUMP SUM	_____.____
0034	203.0225.S Debris Containment (structure) 0002. B-40-875	LS	LUMP SUM	_____.____
0036	203.0225.S Debris Containment (structure) 0003. B-40-876	LS	LUMP SUM	_____.____
0038	203.0225.S Debris Containment (structure) 0004. B-40-877	LS	LUMP SUM	_____.____
0040	203.0600.S Removing Old Structure Over Waterway With Minimal Debris (station) 0001. STA 408+50NS	LS	LUMP SUM	_____.____
0042	203.0600.S Removing Old Structure Over Waterway With Minimal Debris (station) 0002. STA. 220+00NSSB	LS	LUMP SUM	_____.____
0044	204.0100 Removing Concrete Pavement	175,089.000 SY	_____.____	_____.____
0046	204.0110 Removing Asphaltic Surface	14,141.000 SY	_____.____	_____.____
0048	204.0120 Removing Asphaltic Surface Milling	199,191.000 SY	_____.____	_____.____
0050	204.0140 Removing Gutter	200.000 LF	_____.____	_____.____
0052	204.0150 Removing Curb & Gutter	7,571.000 LF	_____.____	_____.____
0054	204.0155 Removing Concrete Sidewalk	4,828.000 SY	_____.____	_____.____
0056	204.0157 Removing Concrete Barrier	18,542.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0058	204.0165 Removing Guardrail	1,240.000 LF	_____.____	_____.____
0060	204.0170 Removing Fence	12,190.000 LF	_____.____	_____.____
0062	204.0175 Removing Concrete Slope Paving	463.000 SY	_____.____	_____.____
0064	204.0195 Removing Concrete Bases	160.000 EACH	_____.____	_____.____
0066	204.0210 Removing Manholes	72.000 EACH	_____.____	_____.____
0068	204.0220 Removing Inlets	339.000 EACH	_____.____	_____.____
0070	204.0245 Removing Storm Sewer (size) 0001. 12-Inch	12,262.000 LF	_____.____	_____.____
0072	204.0245 Removing Storm Sewer (size) 0002. 15-Inch	3,167.000 LF	_____.____	_____.____
0074	204.0245 Removing Storm Sewer (size) 0003. 18-Inch	1,163.000 LF	_____.____	_____.____
0076	204.0245 Removing Storm Sewer (size) 0004. 21-Inch	557.000 LF	_____.____	_____.____
0078	204.0245 Removing Storm Sewer (size) 0005. 24-Inch	2,066.000 LF	_____.____	_____.____
0080	204.0245 Removing Storm Sewer (size) 0006. 27-Inch	147.000 LF	_____.____	_____.____
0082	204.0245 Removing Storm Sewer (size) 0007. 30-Inch	822.000 LF	_____.____	_____.____
0084	204.0245 Removing Storm Sewer (size) 0008. 36-Inch	662.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0086	204.0245 Removing Storm Sewer (size) 0009. 54-Inch	33.000 LF	_____.____	_____.____
0088	204.0245 Removing Storm Sewer (size) 0010. 72-Inch	16.000 LF	_____.____	_____.____
0090	204.0245 Removing Storm Sewer (size) 0011. 19x30-Inch	3.000 LF	_____.____	_____.____
0092	204.0280 Sealing Pipes	29.000 EACH	_____.____	_____.____
0094	204.0291.S Abandoning Sewer	397.000 CY	_____.____	_____.____
0096	204.9001.S Removing Advance Flasher Assemblies Type 1	6.000 EACH	_____.____	_____.____
0098	204.9060.S Removing (item description) 0002. Removing Apron Endwall	3.000 EACH	_____.____	_____.____
0100	204.9060.S Removing (item description) 1001. Removing Distribution Center	5.000 EACH	_____.____	_____.____
0102	204.9060.S Removing (item description) 1002. Removing Lighting Units	158.000 EACH	_____.____	_____.____
0104	204.9060.S Removing (item description) 1003. Removing Sign Lighting	7.000 EACH	_____.____	_____.____
0106	204.9060.S Removing (item description) 1004. Removing Poles Wood 60-FT	8.000 EACH	_____.____	_____.____
0108	204.9060.S Removing (item description) 1005. Removing Poles Wood 60-FT and Floodlight	55.000 EACH	_____.____	_____.____
0110	204.9060.S Removing (item description) 1006. Removing Poles Wood 35-FT	2.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0112	204.9060.S Removing (item description) 1007. Removing Poles Wood 35-FT and Floodlight	3.000 EACH	_____.____	_____.____
0114	204.9060.S Removing (item description) 1008. Removing Underdeck Lighting	5.000 EACH	_____.____	_____.____
0116	204.9060.S Removing (item description) 1009. Removing Luminaries Underdeck Lighting	4.000 EACH	_____.____	_____.____
0118	204.9090.S Removing (item description) 0005. Removing Temporary Precast Trench Drain	2,355.000 LF	_____.____	_____.____
0120	204.9090.S Removing (item description) 0006. Removing Drain Slotted Vane	678.000 LF	_____.____	_____.____
0122	204.9090.S Removing (item description) 0100. Removing Sheet Pile Shoring	400.000 LF	_____.____	_____.____
0124	204.9105.S Removing (item description) 3001. Temporary Traffic Signal IH 41 SB on Ramp & W. North Avenue	LS	LUMP SUM	_____.____
0126	204.9105.S Removing (item description) 3002. Temporary Traffic Signals IH 41 NB on Ramp & W. North Avenue	LS	LUMP SUM	_____.____
0128	204.9105.S Removing (item description) 3101. Traffic Signals W. North Avenue & N. 116th Street	LS	LUMP SUM	_____.____
0130	205.0100 Excavation Common	411,558.000 CY	_____.____	_____.____
0132	205.0501.S Excavation, Hauling, and Disposal of Petroleum Contaminated Soil	11,992.000 TON	_____.____	_____.____
0134	206.1000 Excavation for Structures Bridges (structure) 0001. B-40-138	LS	LUMP SUM	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0136	206.1000 Excavation for Structures Bridges (structure) 0002. B-40-792	LS	LUMP SUM	_____.____
0138	206.1000 Excavation for Structures Bridges (structure) 0003. B-40-793	LS	LUMP SUM	_____.____
0140	206.1000 Excavation for Structures Bridges (structure) 0004. B-40-794	LS	LUMP SUM	_____.____
0142	206.1000 Excavation for Structures Bridges (structure) 0005. B-40-875	LS	LUMP SUM	_____.____
0144	206.1000 Excavation for Structures Bridges (structure) 0006. B-40-876	LS	LUMP SUM	_____.____
0146	206.1000 Excavation for Structures Bridges (structure) 0007. B-40-877	LS	LUMP SUM	_____.____
0148	206.1000 Excavation for Structures Bridges (structure) 0008. B-40-878	LS	LUMP SUM	_____.____
0150	206.1000 Excavation for Structures Bridges (structure) 0009. B-40-879	LS	LUMP SUM	_____.____
0152	206.3000 Excavation for Structures Retaining Walls (structure) 0001. R-40-567	LS	LUMP SUM	_____.____
0154	206.3000 Excavation for Structures Retaining Walls (structure) 0003. R-40-569	LS	LUMP SUM	_____.____
0156	206.3000 Excavation for Structures Retaining Walls (structure) 0005. R-40-622	LS	LUMP SUM	_____.____
0158	206.3000 Excavation for Structures Retaining Walls (structure) 0006. R-40-573	LS	LUMP SUM	_____.____
0160	206.3000 Excavation for Structures Retaining Walls (structure) 0007. R-40-576	LS	LUMP SUM	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0162	206.3000 Excavation for Structures Retaining Walls (structure) 0008. R-40-561	LS	LUMP SUM	_____.____
0164	206.3000 Excavation for Structures Retaining Walls (structure) 0009. R-40-564	LS	LUMP SUM	_____.____
0166	209.1100 Backfill Granular Grade 1	11,768.000 CY	_____.____	_____.____
0168	210.1100 Backfill Structure Type A	95.000 CY	_____.____	_____.____
0170	210.1500 Backfill Structure Type A	18,214.000 TON	_____.____	_____.____
0172	213.0100 Finishing Roadway (project) 0001. 1060-33-84	1.000 EACH	_____.____	_____.____
0174	305.0120 Base Aggregate Dense 1 1/4-Inch	139,850.000 TON	_____.____	_____.____
0176	310.0110 Base Aggregate Open-Graded	1,140.000 TON	_____.____	_____.____
0178	312.0110 Select Crushed Material	238,376.000 TON	_____.____	_____.____
0180	320.0155 Concrete Base 9-Inch	710.000 SY	_____.____	_____.____
0182	390.0403 Base Patching Concrete Shes	3,900.000 SY	_____.____	_____.____
0184	415.0410 Concrete Pavement Approach Slab	2,056.000 SY	_____.____	_____.____
0186	415.1410 Concrete Pavement Approach Slab HES	55.000 SY	_____.____	_____.____
0188	415.5110.S Concrete Pavement Joint Layout	1.000 LS	_____.____	_____.____
0190	416.0270 Concrete Driveway HES 7-Inch	1,357.000 SY	_____.____	_____.____
0192	416.0610 Drilled Tie Bars	2,982.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0194	416.0620 Drilled Dowel Bars	8,349.000 EACH	_____.____	_____.____
0196	416.1715 Concrete Pavement Repair SHES	2,080.000 SY	_____.____	_____.____
0198	416.1725 Concrete Pavement Replacement SHES	3,300.000 SY	_____.____	_____.____
0200	455.0605 Tack Coat	15,347.000 GAL	_____.____	_____.____
0202	460.2000 Incentive Density HMA Pavement	14,208.000 DOL	1.00000	14,208.00
0204	460.5223 HMA Pavement 3 LT 58-28 S	1,120.000 TON	_____.____	_____.____
0206	460.5224 HMA Pavement 4 LT 58-28 S	1,438.000 TON	_____.____	_____.____
0208	460.5225 HMA Pavement 5 LT 58-28 S	107.000 TON	_____.____	_____.____
0210	460.6223 HMA Pavement 3 MT 58-28 S	6,294.000 TON	_____.____	_____.____
0212	460.6224 HMA Pavement 4 MT 58-28 S	11,031.000 TON	_____.____	_____.____
0214	460.7424 HMA Pavement 4 HT 58-28 H	3,592.000 TON	_____.____	_____.____
0216	465.0120 Asphaltic Surface Driveways and Field Entrances	1,211.000 TON	_____.____	_____.____
0218	465.0125 Asphaltic Surface Temporary	26,041.000 TON	_____.____	_____.____
0220	495.1000.S Cold patch	50.000 TON	_____.____	_____.____
0222	501.1000.S Ice Hot Weather Concreting	120,021.000 LB	_____.____	_____.____
0224	502.0100 Concrete Masonry Bridges	8,215.000 CY	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0226	502.0110.S Concrete Masonry Soldier Pile Footings	1,702.000 CY	_____.____	_____.____
0228	502.3101 Expansion Device	332.000 LF	_____.____	_____.____
0230	502.3111.S Expansion Device Modular	54.000 LF	_____.____	_____.____
0232	502.3200 Protective Surface Treatment	4,653.000 SY	_____.____	_____.____
0234	502.3210 Pigmented Surface Sealer	4,264.000 SY	_____.____	_____.____
0236	502.4205 Adhesive Anchors No. 5 Bar	1,073.000 EACH	_____.____	_____.____
0238	502.4207 Adhesive Anchors No. 7 Bar	136.000 EACH	_____.____	_____.____
0240	503.0137 Prestressed Girder Type I 36W-Inch	11,675.000 LF	_____.____	_____.____
0242	503.0155 Prestressed Girder Type I 54W-Inch	15,942.000 LF	_____.____	_____.____
0244	504.0500 Concrete Masonry Retaining Walls	5,891.000 CY	_____.____	_____.____
0246	505.0400 Bar Steel Reinforcement HS Structures	1,991,815.000 LB	_____.____	_____.____
0248	505.0600 Bar Steel Reinforcement HS Coated Structures	3,445,605.000 LB	_____.____	_____.____
0250	505.0800.S Bar Steel Reinforcement HS Stainless Structures	12,204.000 LB	_____.____	_____.____
0252	505.0904 Bar Couplers No. 4	39.000 EACH	_____.____	_____.____
0254	505.0905 Bar Couplers No. 5	120.000 EACH	_____.____	_____.____
0256	505.0906 Bar Couplers No. 6	8.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0258	505.0908 Bar Couplers No. 8	24.000 EACH	_____.____	_____.____
0260	505.0910 Bar Couplers No. 10	126.000 EACH	_____.____	_____.____
0262	505.0911 Bar Couplers No. 11	550.000 EACH	_____.____	_____.____
0264	506.0105 Structural Steel Carbon	25,381.000 LB	_____.____	_____.____
0266	506.0605 Structural Steel HS	4,902,267.000 LB	_____.____	_____.____
0268	506.2605 Bearing Pads Elastomeric Non-Laminated	392.000 EACH	_____.____	_____.____
0270	506.2610 Bearing Pads Elastomeric Laminated	112.000 EACH	_____.____	_____.____
0272	506.3004 Welded Stud Shear Connectors 3/4x4-Inch	176.000 EACH	_____.____	_____.____
0274	506.3010 Welded Stud Shear Connectors 7/8x5-Inch	13,093.000 EACH	_____.____	_____.____
0276	506.3020 Welded Stud Shear Connectors 7/8x7-Inch	6,720.000 EACH	_____.____	_____.____
0278	506.4000 Steel Diaphragms (structure) 0002. B-40-792	9.000 EACH	_____.____	_____.____
0280	506.4000 Steel Diaphragms (structure) 0003. B-40-793	21.000 EACH	_____.____	_____.____
0282	506.4000 Steel Diaphragms (structure) 0004. B-40-794	24.000 EACH	_____.____	_____.____
0284	506.4000 Steel Diaphragms (structure) 0005. B-40-875	192.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0286	506.4000 Steel Diaphragms (structure) 0006. B-40-876	192.000 EACH	_____.____	_____.____
0288	506.4000 Steel Diaphragms (structure) 0007. B-40-138	28.000 EACH	_____.____	_____.____
0290	506.4000 Steel Diaphragms (structure) 0009. B-40-879	30.000 EACH	_____.____	_____.____
0292	506.5000 Bearing Assemblies Fixed (structure) 0001. B-40-138	8.000 EACH	_____.____	_____.____
0294	506.5000 Bearing Assemblies Fixed (structure) 0007. B-40-877	8.000 EACH	_____.____	_____.____
0296	506.6000 Bearing Assemblies Expansion (structure) 0005. B-40-875	26.000 EACH	_____.____	_____.____
0298	506.6000 Bearing Assemblies Expansion (structure) 0006. B-40-876	26.000 EACH	_____.____	_____.____
0300	506.6000 Bearing Assemblies Expansion (structure) 0007. B-40-877	8.000 EACH	_____.____	_____.____
0302	509.0301 Preparation Decks Type 1	4.000 SY	_____.____	_____.____
0304	509.0310.S Sawing Pavement Deck Preparation Areas	40.000 LF	_____.____	_____.____
0306	509.1500 Concrete Surface Repair	231.000 SF	_____.____	_____.____
0308	509.5100.S Polymer Overlay	78,923.000 SY	_____.____	_____.____
0310	511.1100 Temporary Shoring	10,580.000 SF	_____.____	_____.____
0312	511.1200 Temporary Shoring (structure) 0001. B-40-138	1,125.000 SF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0314	511.1200 Temporary Shoring (structure) 0002. B-40-879	1,126.000 SF	_____.____	_____.____
0316	511.1200 Temporary Shoring (structure) 0003. B-40-878	2,433.000 SF	_____.____	_____.____
0318	511.1200 Temporary Shoring (structure) 0005. B-40-875	2,360.000 SF	_____.____	_____.____
0320	511.1200 Temporary Shoring (structure) 0006. B-40-876	2,095.000 SF	_____.____	_____.____
0322	511.1200 Temporary Shoring (structure) 0020. R-40-622	3,350.000 SF	_____.____	_____.____
0324	511.1200 Temporary Shoring (structure) 0022. R-40-569	680.000 SF	_____.____	_____.____
0326	511.1200 Temporary Shoring (structure) 0024. R-40-570	1,220.000 SF	_____.____	_____.____
0328	511.1200 Temporary Shoring (structure) 0030. S-40-442	1,150.000 SF	_____.____	_____.____
0330	511.1300 Temporary Shoring (location) 0001. Sta. 413NS+91 to 416NS+89	7,419.000 SF	_____.____	_____.____
0332	511.1300 Temporary Shoring (location) 0002. Sta. 414NS+11 to 414NS+41	690.000 SF	_____.____	_____.____
0334	511.1300 Temporary Shoring (location) 0003. Sta. 414NS+20 to 416NS+94	6,802.000 SF	_____.____	_____.____
0336	513.2001 Railing Pipe	1,838.000 LF	_____.____	_____.____
0338	514.0450 Floor Drains Type WF	9.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0340	514.1000 Railroad Deck Drains System (railroad structure) 0001. B-40-878	LS	LUMP SUM	_____.____
0342	514.2608 Downspout 8-Inch	382.000 LF	_____.____	_____.____
0344	514.2625 Downspout 6-Inch	46.000 LF	_____.____	_____.____
0346	516.0500 Rubberized Membrane Waterproofing	989.000 SY	_____.____	_____.____
0348	517.0600 Painting Epoxy System (structure) 0001. B-40-877	LS	LUMP SUM	_____.____
0350	517.0600 Painting Epoxy System (structure) 0007. B-40-878	LS	LUMP SUM	_____.____
0352	517.0600 Painting Epoxy System (structure) 0014. R-40-569	LS	LUMP SUM	_____.____
0354	517.0600 Painting Epoxy System (structure) 0017. R-40-573	LS	LUMP SUM	_____.____
0356	517.0600 Painting Epoxy System (structure) 0018. R-40-576	LS	LUMP SUM	_____.____
0358	517.1010.S Concrete Staining (structure) 0001. B-40-792	4,290.000 SF	_____.____	_____.____
0360	517.1010.S Concrete Staining (structure) 0002. B-40-793	3,159.000 SF	_____.____	_____.____
0362	517.1010.S Concrete Staining (structure) 0003. B-40-794	5,144.000 SF	_____.____	_____.____
0364	517.1010.S Concrete Staining (structure) 0004. B-40-875	28,971.000 SF	_____.____	_____.____
0366	517.1010.S Concrete Staining (structure) 0005. B-40-876	27,303.000 SF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0368	517.1010.S Concrete Staining (structure) 0006. B-40-877	11,920.000 SF	_____.____	_____.____
0370	517.1010.S Concrete Staining (structure) 0007. B-40-878	10,365.000 SF	_____.____	_____.____
0372	517.1010.S Concrete Staining (structure) 0008. B-40-879	14,313.000 SF	_____.____	_____.____
0374	517.1010.S Concrete Staining (structure) 0016. R-40-561	6,000.000 SF	_____.____	_____.____
0376	517.1010.S Concrete Staining (structure) 0017. R-40-564	3,740.000 SF	_____.____	_____.____
0378	517.1010.S Concrete Staining (structure) 0018. R-40-567	30,560.000 SF	_____.____	_____.____
0380	517.1010.S Concrete Staining (structure) 0019. R-40-568	1,044.000 SF	_____.____	_____.____
0382	517.1010.S Concrete Staining (structure) 0020. R-40-569	4,355.000 SF	_____.____	_____.____
0384	517.1010.S Concrete Staining (structure) 0021. R-40-570	10,490.000 SF	_____.____	_____.____
0386	517.1010.S Concrete Staining (structure) 0022. R-40-572	1,450.000 SF	_____.____	_____.____
0388	517.1010.S Concrete Staining (structure) 0023. R-40-573	34,045.000 SF	_____.____	_____.____
0390	517.1010.S Concrete Staining (structure) 0024. R-40-576	18,565.000 SF	_____.____	_____.____
0392	517.1010.S Concrete Staining (structure) 0025. R-40-622	2,690.000 SF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0394	517.1010.S Concrete Staining (structure) 0026. R-40-632	2,102.000 SF	_____.____	_____.____
0396	517.1010.S Concrete Staining (structure) 0027. R-40-635	4,495.000 SF	_____.____	_____.____
0398	517.1010.S Concrete Staining (structure) 0030. S-40-67	900.000 SF	_____.____	_____.____
0400	517.1010.S Concrete Staining (structure) 0031. S-40-69	388.000 SF	_____.____	_____.____
0402	517.1010.S Concrete Staining (structure) 0032. S-40-70	882.000 SF	_____.____	_____.____
0404	517.1010.S Concrete Staining (structure) 0033. S-40-71	360.000 SF	_____.____	_____.____
0406	517.1010.S Concrete Staining (structure) 0034. S-40-73	360.000 SF	_____.____	_____.____
0408	517.1010.S Concrete Staining (structure) 0035. S-40-75	375.000 SF	_____.____	_____.____
0410	517.1010.S Concrete Staining (structure) 0036. S-40-77	360.000 SF	_____.____	_____.____
0412	517.1010.S Concrete Staining (structure) 0037. S-40-145	388.000 SF	_____.____	_____.____
0414	517.1010.S Concrete Staining (structure) 0038. S-40-442	910.000 SF	_____.____	_____.____
0416	517.1010.S Concrete Staining (structure) 0039. S-40-783	280.000 SF	_____.____	_____.____
0418	517.1010.S Concrete Staining (structure) 0040. S-40-784	285.000 SF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0420	517.1010.S Concrete Staining (structure) 0041. S-40-785	266.000 SF	_____.____	_____.____
0422	517.1010.S Concrete Staining (structure) 0042. S-40-786	266.000 SF	_____.____	_____.____
0424	517.1010.S Concrete Staining (structure) 0043. S-40-967	752.000 SF	_____.____	_____.____
0426	517.1015.S Concrete Staining Multi-Color (structure) 0001. B-40-792	440.000 SF	_____.____	_____.____
0428	517.1015.S Concrete Staining Multi-Color (structure) 0002. B-40-793	619.000 SF	_____.____	_____.____
0430	517.1015.S Concrete Staining Multi-Color (structure) 0003. B-40-794	619.000 SF	_____.____	_____.____
0432	517.1015.S Concrete Staining Multi-Color (structure) 0004. B-40-875	3,372.000 SF	_____.____	_____.____
0434	517.1015.S Concrete Staining Multi-Color (structure) 0005. B-40-876	3,639.000 SF	_____.____	_____.____
0436	517.1015.S Concrete Staining Multi-Color (structure) 0006. B-40-877	920.000 SF	_____.____	_____.____
0438	517.1015.S Concrete Staining Multi-Color (structure) 0010. R-40-561	4,360.000 SF	_____.____	_____.____
0440	517.1015.S Concrete Staining Multi-Color (structure) 0011. R-40-564	2,175.000 SF	_____.____	_____.____
0442	517.1015.S Concrete Staining Multi-Color (structure) 0013. R-40-568	615.000 SF	_____.____	_____.____
0444	517.1015.S Concrete Staining Multi-Color (structure) 0014. R-40-569	4,145.000 SF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0446	517.1015.S Concrete Staining Multi-Color (structure) 0015. R-40-570	5,905.000 SF	_____.____	_____.____
0448	517.1015.S Concrete Staining Multi-Color (structure) 0016. R-40-572	560.000 SF	_____.____	_____.____
0450	517.1015.S Concrete Staining Multi-Color (structure) 0017. R-40-632	1,102.000 SF	_____.____	_____.____
0452	517.1050.S Architectural Surface Treatment (structure) 0001. B-40-792	440.000 SF	_____.____	_____.____
0454	517.1050.S Architectural Surface Treatment (structure) 0002. B-40-793	619.000 SF	_____.____	_____.____
0456	517.1050.S Architectural Surface Treatment (structure) 0003. B-40-794	619.000 SF	_____.____	_____.____
0458	517.1050.S Architectural Surface Treatment (structure) 0004. B-40-875	3,372.000 SF	_____.____	_____.____
0460	517.1050.S Architectural Surface Treatment (structure) 0005. B-40-876	3,639.000 SF	_____.____	_____.____
0462	517.1050.S Architectural Surface Treatment (structure) 0006. B-40-877	920.000 SF	_____.____	_____.____
0464	517.1050.S Architectural Surface Treatment (structure) 0007. B-40-878	8,786.000 SF	_____.____	_____.____
0466	517.1050.S Architectural Surface Treatment (structure) 0016. R-40-561	4,360.000 SF	_____.____	_____.____
0468	517.1050.S Architectural Surface Treatment (structure) 0017. R-40-564	2,175.000 SF	_____.____	_____.____
0470	517.1050.S Architectural Surface Treatment (structure) 0018. R-40-567	22,850.000 SF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0472	517.1050.S Architectural Surface Treatment (structure) 0019. R-40-568	615.000 SF	_____.____	_____.____
0474	517.1050.S Architectural Surface Treatment (structure) 0020. R-40-569	4,145.000 SF	_____.____	_____.____
0476	517.1050.S Architectural Surface Treatment (structure) 0021. R-40-570	5,905.000 SF	_____.____	_____.____
0478	517.1050.S Architectural Surface Treatment (structure) 0022. R-40-572	560.000 SF	_____.____	_____.____
0480	517.1050.S Architectural Surface Treatment (structure) 0023. R-40-573	23,715.000 SF	_____.____	_____.____
0482	517.1050.S Architectural Surface Treatment (structure) 0024. R-40-576	15,225.000 SF	_____.____	_____.____
0484	517.1050.S Architectural Surface Treatment (structure) 0025. R-40-622	3,340.000 SF	_____.____	_____.____
0486	517.1050.S Architectural Surface Treatment (structure) 0026. R-40-632	1,102.000 SF	_____.____	_____.____
0488	517.1050.S Architectural Surface Treatment (structure) 0027. R-40-635	1,685.000 SF	_____.____	_____.____
0490	520.8000 Concrete Collars for Pipe	139.000 EACH	_____.____	_____.____
0492	522.1012 Apron Endwalls for Culvert Pipe Reinforced Concrete 12-Inch	1.000 EACH	_____.____	_____.____
0494	522.1018 Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch	2.000 EACH	_____.____	_____.____
0496	522.1024 Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch	7.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0498	522.2619 Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 19x30-Inch	1.000 EACH	_____.____	_____.____
0500	531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0001. N-40-82	15,960.000 SF	_____.____	_____.____
0502	531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0002. N-40-83	22,555.000 SF	_____.____	_____.____
0504	531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0003. N-40-84	25,530.000 SF	_____.____	_____.____
0506	531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0004. N-40-85	12,295.000 SF	_____.____	_____.____
0508	531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0005. N-40-86	6,295.000 SF	_____.____	_____.____
0510	531.0300.S Noise Barriers Double-Sided Sound Absorptive (structure) 0006. N-40-87	27,125.000 SF	_____.____	_____.____
0512	550.0010 Pre-Boring Unconsolidated Materials	1,230.000 LF	_____.____	_____.____
0514	550.0500 Pile Points	1,103.000 EACH	_____.____	_____.____
0516	550.1100 Piling Steel HP 10-Inch X 42 Lb	5,940.000 LF	_____.____	_____.____
0518	550.1120 Piling Steel HP 12-Inch X 53 Lb	39,730.000 LF	_____.____	_____.____
0520	550.2106 Piling CIP Concrete 10 3/4 X 0.365-Inch	1,880.000 LF	_____.____	_____.____
0522	601.0110 Concrete Curb Type D	386.000 LF	_____.____	_____.____
0524	601.0319 Concrete Curb & Gutter 19-Inch	2,542.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0526	601.0331 Concrete Curb & Gutter 31-Inch	16,591.000 LF	_____.____	_____.____
0528	601.0407 Concrete Curb & Gutter 18-Inch Type D	718.000 LF	_____.____	_____.____
0530	601.0409 Concrete Curb & Gutter 30-Inch Type A	634.000 LF	_____.____	_____.____
0532	601.0551 Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type A	584.000 LF	_____.____	_____.____
0534	601.0600 Concrete Curb Pedestrian	56.000 LF	_____.____	_____.____
0536	602.0410 Concrete Sidewalk 5-Inch	53,249.000 SF	_____.____	_____.____
0538	602.0515 Curb Ramp Detectable Warning Field Natural Patina	420.000 SF	_____.____	_____.____
0540	602.1500 Concrete Steps	16.000 SF	_____.____	_____.____
0542	603.1142 Concrete Barrier Type S42	35,288.000 LF	_____.____	_____.____
0544	603.1442 Concrete Barrier Type S42C	8,207.000 LF	_____.____	_____.____
0546	603.1456 Concrete Barrier Type S56C	375.000 LF	_____.____	_____.____
0548	603.3213 Concrete Barrier Transition Type F32SF to S36	3.000 EACH	_____.____	_____.____
0550	603.3413 Concrete Barrier Transition Type F32DF to S36	1.000 EACH	_____.____	_____.____
0552	603.3513 Concrete Barrier Transition Type S32 to S36	2.000 EACH	_____.____	_____.____
0554	603.3535 Concrete Barrier Transition Type S36 to S42	6.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0556	603.3675 Concrete Barrier Transition Type V51 to S42	1.000 EACH	_____.____	_____.____
0558	603.8000 Concrete Barrier Temporary Precast Delivered	86,934.000 LF	_____.____	_____.____
0560	603.8125 Concrete Barrier Temporary Precast Installed	138,124.000 LF	_____.____	_____.____
0562	604.0400 Slope Paving Concrete	356.000 SY	_____.____	_____.____
0564	604.0500 Slope Paving Crushed Aggregate	139.000 SY	_____.____	_____.____
0566	606.0100 Riprap Light	356.000 CY	_____.____	_____.____
0568	606.0200 Riprap Medium	1,875.000 CY	_____.____	_____.____
0570	608.0312 Storm Sewer Pipe Reinforced Concrete Class III 12-Inch	5,872.000 LF	_____.____	_____.____
0572	608.0315 Storm Sewer Pipe Reinforced Concrete Class III 15-Inch	2,216.000 LF	_____.____	_____.____
0574	608.0318 Storm Sewer Pipe Reinforced Concrete Class III 18-Inch	1,541.000 LF	_____.____	_____.____
0576	608.0321 Storm Sewer Pipe Reinforced Concrete Class III 21-Inch	11.000 LF	_____.____	_____.____
0578	608.0324 Storm Sewer Pipe Reinforced Concrete Class III 24-Inch	15,224.000 LF	_____.____	_____.____
0580	608.0330 Storm Sewer Pipe Reinforced Concrete Class III 30-Inch	2,494.000 LF	_____.____	_____.____
0582	608.0336 Storm Sewer Pipe Reinforced Concrete Class III 36-Inch	1,119.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0584	608.0342 Storm Sewer Pipe Reinforced Concrete Class III 42-Inch	7.000 LF	_____.____	_____.____
0586	608.0354 Storm Sewer Pipe Reinforced Concrete Class III 54-Inch	109.000 LF	_____.____	_____.____
0588	608.0360 Storm Sewer Pipe Reinforced Concrete Class III 60-Inch	198.000 LF	_____.____	_____.____
0590	608.0372 Storm Sewer Pipe Reinforced Concrete Class III 72-Inch	929.000 LF	_____.____	_____.____
0592	608.0412 Storm Sewer Pipe Reinforced Concrete Class IV 12-Inch	2,405.000 LF	_____.____	_____.____
0594	608.0415 Storm Sewer Pipe Reinforced Concrete Class IV 15-Inch	526.000 LF	_____.____	_____.____
0596	608.0418 Storm Sewer Pipe Reinforced Concrete Class IV 18-Inch	192.000 LF	_____.____	_____.____
0598	608.0424 Storm Sewer Pipe Reinforced Concrete Class IV 24-Inch	3,176.000 LF	_____.____	_____.____
0600	608.0430 Storm Sewer Pipe Reinforced Concrete Class IV 30-Inch	359.000 LF	_____.____	_____.____
0602	608.0436 Storm Sewer Pipe Reinforced Concrete Class IV 36-Inch	347.000 LF	_____.____	_____.____
0604	608.0442 Storm Sewer Pipe Reinforced Concrete Class IV 42-Inch	10.000 LF	_____.____	_____.____
0606	608.0454 Storm Sewer Pipe Reinforced Concrete Class IV 54-Inch	149.000 LF	_____.____	_____.____
0608	608.0472 Storm Sewer Pipe Reinforced Concrete Class IV 72-Inch	596.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0610	608.0512 Storm Sewer Pipe Reinforced Concrete Class V 12-Inch	194.000 LF	_____.____	_____.____
0612	608.0515 Storm Sewer Pipe Reinforced Concrete Class V 15-Inch	17.000 LF	_____.____	_____.____
0614	608.0518 Storm Sewer Pipe Reinforced Concrete Class V 18-Inch	68.000 LF	_____.____	_____.____
0616	608.0524 Storm Sewer Pipe Reinforced Concrete Class V 24-Inch	94.000 LF	_____.____	_____.____
0618	608.2348 Storm Sewer Pipe Reinforced Concrete Horizontal Elliptical Class HE-III 48x76-Inch	327.000 LF	_____.____	_____.____
0620	608.2419 Storm Sewer Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 19x30-Inch	187.000 LF	_____.____	_____.____
0622	611.0420 Reconstructing Manholes	22.000 EACH	_____.____	_____.____
0624	611.0430 Reconstructing Inlets	30.000 EACH	_____.____	_____.____
0626	611.0535 Manhole Covers Type J-Special	96.000 EACH	_____.____	_____.____
0628	611.0606 Inlet Covers Type B	3.000 EACH	_____.____	_____.____
0630	611.0612 Inlet Covers Type C	1.000 EACH	_____.____	_____.____
0632	611.0624 Inlet Covers Type H	97.000 EACH	_____.____	_____.____
0634	611.0627 Inlet Covers Type HM	2.000 EACH	_____.____	_____.____
0636	611.0642 Inlet Covers Type MS	81.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0638	611.0654 Inlet Covers Type V	203.000 EACH	_____.____	_____.____
0640	611.0663 Inlet Covers Type X	7.000 EACH	_____.____	_____.____
0642	611.2003 Manholes 3-FT Diameter	2.000 EACH	_____.____	_____.____
0644	611.2004 Manholes 4-FT Diameter	29.000 EACH	_____.____	_____.____
0646	611.2005 Manholes 5-FT Diameter	250.000 EACH	_____.____	_____.____
0648	611.2006 Manholes 6-FT Diameter	44.000 EACH	_____.____	_____.____
0650	611.2007 Manholes 7-FT Diameter	13.000 EACH	_____.____	_____.____
0652	611.2008 Manholes 8-FT Diameter	4.000 EACH	_____.____	_____.____
0654	611.3004 Inlets 4-FT Diameter	184.000 EACH	_____.____	_____.____
0656	611.3225 Inlets 2x2.5-FT	6.000 EACH	_____.____	_____.____
0658	611.3230 Inlets 2x3-FT	3.000 EACH	_____.____	_____.____
0660	611.3901 Inlets Median 1 Grate	19.000 EACH	_____.____	_____.____
0662	611.3902 Inlets Median 2 Grate	28.000 EACH	_____.____	_____.____
0664	611.8110 Adjusting Manhole Covers	6.000 EACH	_____.____	_____.____
0666	611.8115 Adjusting Inlet Covers	10.000 EACH	_____.____	_____.____
0668	611.8120.S Cover Plates Temporary	64.000 EACH	_____.____	_____.____
0670	611.9800.S Pipe Grates	5.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0672	612.0106 Pipe Underdrain 6-Inch	734.000 LF	_____.____	_____.____
0674	612.0206 Pipe Underdrain Unperforated 6-Inch	387.000 LF	_____.____	_____.____
0676	612.0406 Pipe Underdrain Wrapped 6-Inch	6,790.000 LF	_____.____	_____.____
0678	612.0806 Apron Endwalls for Underdrain Reinforced Concrete 6-Inch	3.000 EACH	_____.____	_____.____
0680	614.0150 Anchor Assemblies for Steel Plate Beam Guard	2.000 EACH	_____.____	_____.____
0682	614.0805 Crash Cushions Permanent Low Maintenance	22.000 EACH	_____.____	_____.____
0684	614.0905 Crash Cushions Temporary	4.000 EACH	_____.____	_____.____
0686	614.0950 Replacing Guardrail Posts and Blocks	30.000 EACH	_____.____	_____.____
0688	614.0951 Replacing Guardrail Rail and Hardware	300.000 LF	_____.____	_____.____
0690	614.2300 MGS Guardrail 3	98.000 LF	_____.____	_____.____
0692	614.2500 MGS Thrie Beam Transition	160.000 LF	_____.____	_____.____
0694	614.2610 MGS Guardrail Terminal EAT	4.000 EACH	_____.____	_____.____
0696	614.2620 MGS Guardrail Terminal Type 2	2.000 EACH	_____.____	_____.____
0698	616.0206 Fence Chain Link 6-FT	8,040.000 LF	_____.____	_____.____
0700	616.0329 Gates Chain Link (width) 0001. 12-FT	7.000 EACH	_____.____	_____.____
0702	616.0700.S Fence Safety	5,000.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0704	619.1000 Mobilization	1.000 EACH	_____.____	_____.____
0706	620.0300 Concrete Median Sloped Nose	942.000 SF	_____.____	_____.____
0708	623.0200 Dust Control Surface Treatment	243.000 SY	_____.____	_____.____
0710	624.0100 Water	2,228.000 MGAL	_____.____	_____.____
0712	627.0200 Mulching	10,765.000 SY	_____.____	_____.____
0714	628.1104 Erosion Bales	400.000 EACH	_____.____	_____.____
0716	628.1504 Silt Fence	18,155.000 LF	_____.____	_____.____
0718	628.1520 Silt Fence Maintenance	21,269.000 LF	_____.____	_____.____
0720	628.1905 Mobilizations Erosion Control	43.000 EACH	_____.____	_____.____
0722	628.1910 Mobilizations Emergency Erosion Control	40.000 EACH	_____.____	_____.____
0724	628.2004 Erosion Mat Class I Type B	37,469.000 SY	_____.____	_____.____
0726	628.2027 Erosion Mat Class II Type C	92,450.000 SY	_____.____	_____.____
0728	628.5505 Polyethylene Sheeting	2,000.000 SY	_____.____	_____.____
0730	628.6505 Soil Stabilizer Type A	1.000 ACRE	_____.____	_____.____
0732	628.6510 Soil Stabilizer Type B	6.000 ACRE	_____.____	_____.____
0734	628.7005 Inlet Protection Type A	787.000 EACH	_____.____	_____.____
0736	628.7010 Inlet Protection Type B	156.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0738	628.7015 Inlet Protection Type C	55.000 EACH	_____.____	_____.____
0740	628.7020 Inlet Protection Type D	1,005.000 EACH	_____.____	_____.____
0742	628.7504 Temporary Ditch Checks	270.000 LF	_____.____	_____.____
0744	628.7560 Tracking Pads	40.000 EACH	_____.____	_____.____
0746	628.7570 Rock Bags	630.000 EACH	_____.____	_____.____
0748	629.0210 Fertilizer Type B	108.000 CWT	_____.____	_____.____
0750	630.0120 Seeding Mixture No. 20	6,965.000 LB	_____.____	_____.____
0752	630.0200 Seeding Temporary	2,389.000 LB	_____.____	_____.____
0754	630.0500 Seed Water	2,627.000 MGAL	_____.____	_____.____
0756	631.0300 Sod Water	132.000 MGAL	_____.____	_____.____
0758	631.1000 Sod Lawn	7,094.000 SY	_____.____	_____.____
0760	631.1100 Sod Erosion Control	100.000 SY	_____.____	_____.____
0762	633.1000 Delineators Barrier Wall	500.000 EACH	_____.____	_____.____
0764	633.5200 Markers Culvert End	14.000 EACH	_____.____	_____.____
0766	634.0618 Posts Wood 4x6-Inch X 18-FT	102.000 EACH	_____.____	_____.____
0768	634.0620 Posts Wood 4x6-Inch X 20-FT	3.000 EACH	_____.____	_____.____
0770	634.0622 Posts Wood 4x6-Inch X 22-FT	44.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0772	634.0816 Posts Tubular Steel 2x2-Inch X 16-FT	114.000 EACH	_____.____	_____.____
0774	634.0885 Posts Tubular Steel 2x2-Inch X 8.5-FT	4.000 EACH	_____.____	_____.____
0776	635.0200 Sign Supports Structural Steel HS	11,700.000 LB	_____.____	_____.____
0778	635.0300 Sign Supports Replacing Base Connection Bolts	2.000 EACH	_____.____	_____.____
0780	636.0100 Sign Supports Concrete Masonry	463.600 CY	_____.____	_____.____
0782	636.0500 Sign Supports Steel Reinforcement	2,650.000 LB	_____.____	_____.____
0784	636.1000 Sign Supports Steel Reinforcement HS	34,895.000 LB	_____.____	_____.____
0786	636.1500 Sign Supports Steel Coated Reinforcement HS	61,370.000 LB	_____.____	_____.____
0788	637.1220 Signs Type I Reflective SH	2,932.000 SF	_____.____	_____.____
0790	637.1230 Signs Type I Reflective F	122.000 SF	_____.____	_____.____
0792	637.2210 Signs Type II Reflective H	2,297.260 SF	_____.____	_____.____
0794	637.2215 Signs Type II Reflective H Folding	152.420 SF	_____.____	_____.____
0796	637.2230 Signs Type II Reflective F	1,281.500 SF	_____.____	_____.____
0798	638.2101 Moving Signs Type I	21.000 EACH	_____.____	_____.____
0800	638.2102 Moving Signs Type II	53.000 EACH	_____.____	_____.____
0802	638.2601 Removing Signs Type I	17.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0804	638.2602 Removing Signs Type II	222.000 EACH	_____.____	_____.____
0806	638.3000 Removing Small Sign Supports	153.000 EACH	_____.____	_____.____
0808	638.3100 Removing Structural Steel Sign Supports	29.000 EACH	_____.____	_____.____
0810	638.3150 Removing Overhead Sign Supports Cantilever (structure) 0001. S-40-233	1.000 EACH	_____.____	_____.____
0812	638.3150 Removing Overhead Sign Supports Cantilever (structure) 0002. S-40-234	1.000 EACH	_____.____	_____.____
0814	638.3150 Removing Overhead Sign Supports Cantilever (structure) 0003. S-40-235	1.000 EACH	_____.____	_____.____
0816	638.3150 Removing Overhead Sign Supports Cantilever (structure) 0004. S-40-236	1.000 EACH	_____.____	_____.____
0818	638.3150 Removing Overhead Sign Supports Cantilever (structure) 0005. S-40-281	1.000 EACH	_____.____	_____.____
0820	638.3150 Removing Overhead Sign Supports Cantilever (structure) 0006. S-40-354	1.000 EACH	_____.____	_____.____
0822	638.3150 Removing Overhead Sign Supports Cantilever (structure) 0008. S-40-378	1.000 EACH	_____.____	_____.____
0824	638.3150 Removing Overhead Sign Supports Cantilever (structure) 0009. S-40-792	1.000 EACH	_____.____	_____.____
0826	638.3155 Removing Overhead Sign Supports Full Span (structure) 0007. S-40-355	1.000 EACH	_____.____	_____.____
0828	641.0100 Sign Bridge Single Pole Sign Support One Sign (structure) 0001. S-40-784	LS	LUMP SUM	_____.____
0830	641.0100 Sign Bridge Single Pole Sign Support One Sign (structure) 0002. S-40-785	LS	LUMP SUM	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0832	641.0100 Sign Bridge Single Pole Sign Support One Sign (structure) 0003. S-40-786	LS	LUMP SUM	_____._____
0834	641.0600 Sign Bridge Single Pole Sign Support Two Signs (structure) 0001. S-40-783	LS	LUMP SUM	_____._____
0836	641.1200 Sign Bridge Cantilevered (structure) 0001. S-40-69	LS	LUMP SUM	_____._____
0838	641.1200 Sign Bridge Cantilevered (structure) 0002. S-40-71	LS	LUMP SUM	_____._____
0840	641.1200 Sign Bridge Cantilevered (structure) 0004. S-40-75	LS	LUMP SUM	_____._____
0842	641.1200 Sign Bridge Cantilevered (structure) 0005. S-40-77	LS	LUMP SUM	_____._____
0844	641.1200 Sign Bridge Cantilevered (structure) 0006. S-40-145	LS	LUMP SUM	_____._____
0846	641.1200 Sign Bridge Cantilevered (structure) 0007. S-40-967	LS	LUMP SUM	_____._____
0848	641.1200 Sign Bridge Cantilevered (structure) 0009. S-40-73	LS	LUMP SUM	_____._____
0850	641.6600 Sign Bridge (structure) 0001. S-40-67	LS	LUMP SUM	_____._____
0852	641.6600 Sign Bridge (structure) 0002. S-40-70	LS	LUMP SUM	_____._____
0854	641.6600 Sign Bridge (structure) 0003. S-40-442	LS	LUMP SUM	_____._____
0856	641.8100 Overhead Sign Support (structure) 0001. S-40-972	LS	LUMP SUM	_____._____
0858	641.8100 Overhead Sign Support (structure) 0002. S-40-970	LS	LUMP SUM	_____._____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0860	641.8100 Overhead Sign Support (structure) 0003. S-40-968	LS	LUMP SUM	_____.____
0862	641.8100 Overhead Sign Support (structure) 0004. S-40-799	LS	LUMP SUM	_____.____
0864	641.8100 Overhead Sign Support (structure) 0005. S-40-798	LS	LUMP SUM	_____.____
0866	641.8100 Overhead Sign Support (structure) 0006. S-40-969	LS	LUMP SUM	_____.____
0868	643.0300 Traffic Control Drums	623,655.000 DAY	_____.____	_____.____
0870	643.0410 Traffic Control Barricades Type II	6,150.000 DAY	_____.____	_____.____
0872	643.0420 Traffic Control Barricades Type III	56,684.000 DAY	_____.____	_____.____
0874	643.0500 Traffic Control Flexible Tubular Marker Posts	45.000 EACH	_____.____	_____.____
0876	643.0600 Traffic Control Flexible Tubular Marker Bases	45.000 EACH	_____.____	_____.____
0878	643.0705 Traffic Control Warning Lights Type A	97,988.000 DAY	_____.____	_____.____
0880	643.0715 Traffic Control Warning Lights Type C	107,419.000 DAY	_____.____	_____.____
0882	643.0800 Traffic Control Arrow Boards	11,165.000 DAY	_____.____	_____.____
0884	643.0900 Traffic Control Signs	506,843.000 DAY	_____.____	_____.____
0886	643.0910 Traffic Control Covering Signs Type I	754.000 EACH	_____.____	_____.____
0888	643.0920 Traffic Control Covering Signs Type II	1,480.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0890	643.1000 Traffic Control Signs Fixed Message	3,000.500 SF	_____.____	_____.____
0892	643.1050 Traffic Control Signs PCMS	8,414.000 DAY	_____.____	_____.____
0894	643.1100.S Dynamic Late Merge System	1,694.000 DAY	_____.____	_____.____
0896	643.4100.S Traffic Control Interim Lane Closure	3,290.000 EACH	_____.____	_____.____
0898	643.5000 Traffic Control	1.000 EACH	_____.____	_____.____
0900	644.1410 Temporary Pedestrian Surface Asphalt	1,000.000 SF	_____.____	_____.____
0902	644.1430 Temporary Pedestrian Surface Plate	500.000 SF	_____.____	_____.____
0904	644.1601 Temporary Pedestrian Curb Ramp	10.000 DAY	_____.____	_____.____
0906	644.1810 Temporary Pedestrian Barricade	500.000 LF	_____.____	_____.____
0908	645.0111 Geotextile Type DF Schedule A	852.000 SY	_____.____	_____.____
0910	645.0112 Geotextile Type DF Schedule B	1,600.000 SY	_____.____	_____.____
0912	645.0120 Geotextile Type HR	2,903.000 SY	_____.____	_____.____
0914	645.0130 Geotextile Type R	1,230.000 SY	_____.____	_____.____
0916	645.0140 Geotextile Type SAS	2,821.000 SY	_____.____	_____.____
0918	645.0220 Geogrid Type SR	10,000.000 SY	_____.____	_____.____
0920	646.1020 Marking Line Epoxy 4-Inch	89,103.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0922	646.1040 Marking Line Grooved Wet Ref Epoxy 4-Inch	50,282.000 LF	_____.____	_____.____
0924	646.1041.S Marking Replace Line Wet Reflective Epoxy 4-Inch	140,220.000 LF	_____.____	_____.____
0926	646.1546.S Marking Replace Line Contrast Wet Reflective Epoxy 4-Inch	56,377.000 LF	_____.____	_____.____
0928	646.1555 Marking Line Grooved Contrast Permanent Tape 4-Inch	20,777.000 LF	_____.____	_____.____
0930	646.3020 Marking Line Epoxy 8-Inch	557.000 LF	_____.____	_____.____
0932	646.3546.S Marking Replace Line Contrast Wet Reflective Epoxy 8-Inch	63,499.000 LF	_____.____	_____.____
0934	646.3555 Marking Line Grooved Contrast Permanent Tape 8-Inch	20,712.000 LF	_____.____	_____.____
0936	646.5020 Marking Arrow Epoxy	139.000 EACH	_____.____	_____.____
0938	646.5120 Marking Word Epoxy	51.000 EACH	_____.____	_____.____
0940	646.5220 Marking Symbol Epoxy	33.000 EACH	_____.____	_____.____
0942	646.6120 Marking Stop Line Epoxy 18-Inch	1,014.000 LF	_____.____	_____.____
0944	646.7120 Marking Diagonal Epoxy 12-Inch	11,688.000 LF	_____.____	_____.____
0946	646.7220 Marking Chevron Epoxy 24-Inch	8,478.000 LF	_____.____	_____.____
0948	646.7420 Marking Crosswalk Epoxy Transverse Line 6-Inch	2,438.000 LF	_____.____	_____.____
0950	646.8120 Marking Curb Epoxy	416.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0952	646.8220 Marking Island Nose Epoxy	19.000 EACH	_____.____	_____.____
0954	646.8320 Marking Parking Stall Epoxy	152.000 LF	_____.____	_____.____
0956	646.9000 Marking Removal Line 4-Inch	120,000.000 LF	_____.____	_____.____
0958	646.9010 Marking Removal Line Water Blasting 4-Inch	88,274.000 LF	_____.____	_____.____
0960	646.9310 Marking Removal Special Marking Water Blasting	2.000 EACH	_____.____	_____.____
0962	649.0105 Temporary Marking Line Paint 4-Inch	19,000.000 LF	_____.____	_____.____
0964	649.0120 Temporary Marking Line Epoxy 4-Inch	360,000.000 LF	_____.____	_____.____
0966	649.0150 Temporary Marking Line Removable Tape 4-Inch	53,301.000 LF	_____.____	_____.____
0968	649.0205 Temporary Marking Line Paint 8-Inch	675.000 LF	_____.____	_____.____
0970	649.0220 Temporary Marking Line Epoxy 8-Inch	13,500.000 LF	_____.____	_____.____
0972	649.0250 Temporary Marking Line Removable Tape 8-Inch	5,898.000 LF	_____.____	_____.____
0974	649.0520 Temporary Marking Arrow Epoxy	10.000 EACH	_____.____	_____.____
0976	649.0760 Temporary Marking Raised Pavement Marker Type I	100.000 EACH	_____.____	_____.____
0978	652.0125 Conduit Rigid Metallic 2-Inch	1,203.000 LF	_____.____	_____.____
0980	652.0135 Conduit Rigid Metallic 3-Inch	28.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0982	652.0210 Conduit Rigid Nonmetallic Schedule 40 1-Inch	235.000 LF	_____.____	_____.____
0984	652.0225 Conduit Rigid Nonmetallic Schedule 40 2-Inch	71,215.000 LF	_____.____	_____.____
0986	652.0235 Conduit Rigid Nonmetallic Schedule 40 3-Inch	7,449.000 LF	_____.____	_____.____
0988	652.0615 Conduit Special 3-Inch	675.000 LF	_____.____	_____.____
0990	652.0700.S Install Conduit into Existing Item	8.000 EACH	_____.____	_____.____
0992	652.0800 Conduit Loop Detector	3,290.000 LF	_____.____	_____.____
0994	653.0135 Pull Boxes Steel 24x36-Inch	7.000 EACH	_____.____	_____.____
0996	653.0140 Pull Boxes Steel 24x42-Inch	131.000 EACH	_____.____	_____.____
0998	653.0220 Junction Boxes 18x6x6-Inch	17.000 EACH	_____.____	_____.____
1000	653.0222 Junction Boxes 18x12x6-Inch	27.000 EACH	_____.____	_____.____
1002	653.0905 Removing Pull Boxes	90.000 EACH	_____.____	_____.____
1004	654.0101 Concrete Bases Type 1	23.000 EACH	_____.____	_____.____
1006	654.0102 Concrete Bases Type 2	4.000 EACH	_____.____	_____.____
1008	654.0105 Concrete Bases Type 5	126.000 EACH	_____.____	_____.____
1010	654.0106 Concrete Bases Type 6	2.000 EACH	_____.____	_____.____
1012	654.0110 Concrete Bases Type 10	8.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1014	654.0111 Concrete Bases Type 11	7.000 EACH	_____.____	_____.____
1016	654.0217 Concrete Control Cabinet Bases Type 9 Special	4.000 EACH	_____.____	_____.____
1018	654.0230 Concrete Control Cabinet Bases Type L30	3.000 EACH	_____.____	_____.____
1020	654.1150 Concrete Bases Camera Pole 50-FT	3.000 EACH	_____.____	_____.____
1022	654.1239 Concrete Control Cabinet Bases ITS	3.000 EACH	_____.____	_____.____
1024	655.0122 Cable In Duct 3-2 AWG	85.000 LF	_____.____	_____.____
1026	655.0124 Cable In Duct 3-4 AWG	610.000 LF	_____.____	_____.____
1028	655.0210 Cable Traffic Signal 3-14 AWG	2,307.000 LF	_____.____	_____.____
1030	655.0230 Cable Traffic Signal 5-14 AWG	2,808.000 LF	_____.____	_____.____
1032	655.0240 Cable Traffic Signal 7-14 AWG	3,667.000 LF	_____.____	_____.____
1034	655.0260 Cable Traffic Signal 12-14 AWG	5,192.000 LF	_____.____	_____.____
1036	655.0320 Cable Type UF 2-10 AWG Grounded	2,083.000 LF	_____.____	_____.____
1038	655.0510 Electrical Wire Traffic Signals 12 AWG	21,105.000 LF	_____.____	_____.____
1040	655.0515 Electrical Wire Traffic Signals 10 AWG	5,167.000 LF	_____.____	_____.____
1042	655.0610 Electrical Wire Lighting 12 AWG	34,200.000 LF	_____.____	_____.____
1044	655.0615 Electrical Wire Lighting 10 AWG	5,426.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1046	655.0620 Electrical Wire Lighting 8 AWG	59,550.000 LF	_____.____	_____.____
1048	655.0625 Electrical Wire Lighting 6 AWG	22,375.000 LF	_____.____	_____.____
1050	655.0630 Electrical Wire Lighting 4 AWG	88,380.000 LF	_____.____	_____.____
1052	655.0635 Electrical Wire Lighting 2 AWG	38,210.000 LF	_____.____	_____.____
1054	655.0640 Electrical Wire Lighting 1 AWG	90.000 LF	_____.____	_____.____
1056	655.0700 Loop Detector Lead In Cable	17,528.000 LF	_____.____	_____.____
1058	655.0800 Loop Detector Wire	12,549.000 LF	_____.____	_____.____
1060	655.0900 Traffic Signal EVP Detector Cable	2,307.000 LF	_____.____	_____.____
1062	656.0200 Electrical Service Meter Breaker Pedestal (location) 2001. RM-40-0026	LS	LUMP SUM	_____.____
1064	656.0200 Electrical Service Meter Breaker Pedestal (location) 2002. RM-40-0104	LS	LUMP SUM	_____.____
1066	656.0200 Electrical Service Meter Breaker Pedestal (location) 2003. RM-40-0103	LS	LUMP SUM	_____.____
1068	656.0200 Electrical Service Meter Breaker Pedestal (location) 2004. CCTV-40-0038	LS	LUMP SUM	_____.____
1070	656.0200 Electrical Service Meter Breaker Pedestal (location) 2005. DMS-40-0037	LS	LUMP SUM	_____.____
1072	656.0200 Electrical Service Meter Breaker Pedestal (location) 3001. (IH 41 SB on Ramp & W. North Avenue)	LS	LUMP SUM	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1074	656.0200 Electrical Service Meter Breaker Pedestal (location) 3002. (IH 41 NB on Ramp & W. North Avenue)	LS	LUMP SUM	_____.____
1076	656.0200 Electrical Service Meter Breaker Pedestal (location) 3101. (W. North Avenue & N. 116TH Street)	LS	LUMP SUM	_____.____
1078	656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 1001. HL-40-UC	LS	LUMP SUM	_____.____
1080	656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 1002. HL-40-NA	LS	LUMP SUM	_____.____
1082	656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 1003. HL-40-BS	LS	LUMP SUM	_____.____
1084	656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 1004. H	LS	LUMP SUM	_____.____
1086	656.0400 Electrical Service Main Lugs Only Meter Pedestal (location) 1005. 88	LS	LUMP SUM	_____.____
1088	656.0500 Electrical Service Breaker Disconnect Box (location) 2001. RM-40-0026	LS	LUMP SUM	_____.____
1090	656.0500 Electrical Service Breaker Disconnect Box (location) 2002. RM-40-0104	LS	LUMP SUM	_____.____
1092	656.0500 Electrical Service Breaker Disconnect Box (location) 2003. RM-40-0103	LS	LUMP SUM	_____.____
1094	656.0500 Electrical Service Breaker Disconnect Box (location) 2004. CCTV-40-0038	LS	LUMP SUM	_____.____
1096	656.0500 Electrical Service Breaker Disconnect Box (location) 2005. CCTV-40-0039	LS	LUMP SUM	_____.____
1098	656.0500 Electrical Service Breaker Disconnect Box (location) 2006. DMS-40-0037	LS	LUMP SUM	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1100	657.0100 Pedestal Bases	14.000 EACH	_____.____	_____.____
1102	657.0210 Transformer Bases Breakaway 15-17 Inch Bolt Circle	46.000 EACH	_____.____	_____.____
1104	657.0255 Transformer Bases Breakaway 11 1/2-Inch Bolt Circle	102.000 EACH	_____.____	_____.____
1106	657.0305 Poles Type 2	2.000 EACH	_____.____	_____.____
1108	657.0310 Poles Type 3	2.000 EACH	_____.____	_____.____
1110	657.0322 Poles Type 5-Aluminum	128.000 EACH	_____.____	_____.____
1112	657.0327 Poles Type 6-Aluminum	2.000 EACH	_____.____	_____.____
1114	657.0375 Poles Type A	51.000 EACH	_____.____	_____.____
1116	657.0420 Traffic Signal Standards Aluminum 13-FT	1.000 EACH	_____.____	_____.____
1118	657.0425 Traffic Signal Standards Aluminum 15-FT	8.000 EACH	_____.____	_____.____
1120	657.0430 Traffic Signal Standards Aluminum 10-FT	5.000 EACH	_____.____	_____.____
1122	657.0609 Luminaire Arms Single Member 4-Inch Clamp 6-FT	2.000 EACH	_____.____	_____.____
1124	657.0610 Luminaire Arms Single Member 4 1/2-Inch Clamp 6-FT	126.000 EACH	_____.____	_____.____
1126	657.0620 Luminaire Arms Single Member 6-Inch Clamp 4-FT	104.000 EACH	_____.____	_____.____
1128	657.6005 Anchor Assemblies Light Poles on Structures	18.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1130	658.0171 Traffic Signal Face 1S 12-Inch	2.000 EACH	_____.____	_____.____
1132	658.0173 Traffic Signal Face 3S 12-Inch	25.000 EACH	_____.____	_____.____
1134	658.0174 Traffic Signal Face 4S 12-Inch	19.000 EACH	_____.____	_____.____
1136	658.0416 Pedestrian Signal Face 16-Inch	16.000 EACH	_____.____	_____.____
1138	658.0500 Pedestrian Push Buttons	19.000 EACH	_____.____	_____.____
1140	658.5069 Signal Mounting Hardware (location) 3001. (IH 41 SB on Ramp & W. North Avenue)	LS	LUMP SUM	_____.____
1142	658.5069 Signal Mounting Hardware (location) 3002. (IH 41 NB on Ramp & W. North Avenue)	LS	LUMP SUM	_____.____
1144	658.5069 Signal Mounting Hardware (location) 3101. (W. North Avenue and N. 116TH Street)	LS	LUMP SUM	_____.____
1146	659.0600 Underdeck Lighting (location) 1001. IH 41 (Meinecke Avenue Bridge)	LS	LUMP SUM	_____.____
1148	659.0600 Underdeck Lighting (location) 1002. IH 41 (Center Street Bridge)	LS	LUMP SUM	_____.____
1150	659.0600 Underdeck Lighting (location) 1003. STH 100 (IH 41 NB Bridge)	LS	LUMP SUM	_____.____
1152	659.0600 Underdeck Lighting (location) 1004. STH 100 (IH 41 SB Bridge)	LS	LUMP SUM	_____.____
1154	659.0600 Underdeck Lighting (location) 1005. North Avenue (IH 41 NB Bridge)	LS	LUMP SUM	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1156	659.0600 Underdeck Lighting (location) 1006. North Avenue (IH 41 SB Bridge)	LS	LUMP SUM	_____.____
1158	659.0700 Lighting Units Walkway	7.000 EACH	_____.____	_____.____
1162	659.1125 Luminaires Utility LED C	123.000 EACH	_____.____	_____.____
1164	659.1130 Luminaires Utility LED D	102.000 EACH	_____.____	_____.____
1166	659.1215 Luminaires Underdeck LED C	20.000 EACH	_____.____	_____.____
1168	659.2230 Lighting Control Cabinets 240/480 30-Inch	3.000 EACH	_____.____	_____.____
1170	662.1030.S Ramp Closure Gates 30-FT	1.000 EACH	_____.____	_____.____
1172	662.1037.S Ramp Closure Gates 37-FT	3.000 EACH	_____.____	_____.____
1174	662.1040.S Ramp Closure Gates 40-FT	2.000 EACH	_____.____	_____.____
1176	670.0100 Field System Integrator 2001. FTMS	LS	LUMP SUM	_____.____
1178	670.0100 Field System Integrator 3001. W. North Avenue Interconnect	LS	LUMP SUM	_____.____
1180	670.0200 ITS Documentation 2001. FTMS	LS	LUMP SUM	_____.____
1182	670.0200 ITS Documentation 3001. W. North Avenue Interconnect	LS	LUMP SUM	_____.____
1184	671.0132 Conduit HDPE 3-Duct 2-Inch	8,930.000 LF	_____.____	_____.____
1186	673.0105 Communication Vault Type 1	13.000 EACH	_____.____	_____.____
1188	673.0200.S Install ITS Field Cabinet	3.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1190	673.0225.S Install Pole Mounted Cabinet	4.000 EACH	_____.____	_____.____
1192	674.0200 Cable Microwave Detector	9,770.000 LF	_____.____	_____.____
1194	674.0300 Remove Cable	13,035.000 LF	_____.____	_____.____
1196	675.0100 Install Controller Ramp Meter Processor Assembly	3.000 EACH	_____.____	_____.____
1198	675.0300 Install Mounted Controller Microwave Detector Assembly	12.000 EACH	_____.____	_____.____
1200	677.0150 Install Camera Pole 50-FT	3.000 EACH	_____.____	_____.____
1202	677.0200 Install Camera Assembly	3.000 EACH	_____.____	_____.____
1204	677.9051.S Removing 50-FT Camera Pole	2.000 EACH	_____.____	_____.____
1206	677.9200.S Removing CCTV Camera	2.000 EACH	_____.____	_____.____
1208	678.0006 Install Fiber Optic Cable Outdoor Plant 6-CT	8,168.000 LF	_____.____	_____.____
1210	678.0072 Install Fiber Optic Cable Outdoor Plant 72-CT	13,965.000 LF	_____.____	_____.____
1212	678.0100.S Install Overhead Freeway DMS Full Matrix	1.000 EACH	_____.____	_____.____
1214	678.0300 Fiber Optic Splice	444.000 EACH	_____.____	_____.____
1216	678.0400 Fiber Optic Termination	62.000 EACH	_____.____	_____.____
1218	678.0500 Communication System Testing	 LS	 LUMP SUM	 _____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1220	678.0500 Communication System Testing 3001. W. North Avenue Interconnect	LS	LUMP SUM	_____.____
1222	678.0600 Install Ethernet Switches	9.000 EACH	_____.____	_____.____
1224	690.0150 Sawing Asphalt	3,220.000 LF	_____.____	_____.____
1226	690.0250 Sawing Concrete	56,762.000 LF	_____.____	_____.____
1228	715.0415 Incentive Strength Concrete Pavement	135,340.000 DOL	1.00000	135,340.00
1230	715.0502 Incentive Strength Concrete Structures	22,000.000 DOL	1.00000	22,000.00
1232	715.0603 Incentive Strength Concrete Barrier	28,000.000 DOL	1.00000	28,000.00
1234	740.0440 Incentive IRI Ride	42,765.000 DOL	1.00000	42,765.00
1236	801.0117 Railroad Flagging Reimbursement	800,000.000 DOL	1.00000	800,000.00
1238	ASP.1T0A On-the-Job Training Apprentice at $5.00/HR	11,000.000 HRS	5.00000	55,000.00
1240	ASP.1T0G On-the-Job Training Graduate at $5.00/HR	20,700.000 HRS	5.00000	103,500.00
1242	SPV.0035 Special 0001. EBS Excavation	70,523.000 CY	_____.____	_____.____
1244	SPV.0035 Special 0002. EBS Backfill	70,523.000 CY	_____.____	_____.____
1246	SPV.0035 Special 0003. Excavation, Hauling, and Reuse of Low-Level Contaminated Soil	12,310.000 CY	_____.____	_____.____
1248	SPV.0035 Special 0800. Backfill Controlled Low Strength UPRR	250.000 CY	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1250	SPV.0035 Special 4000. HPC Masonry Structures	8,768.000 CY	_____.____	_____.____
1252	SPV.0035 Special 4010. Rapid Set Deck Repair	4.000 CY	_____.____	_____.____
1254	SPV.0035 Special 4020. Lightweight Foamed Concrete Fill	402.000 CY	_____.____	_____.____
1256	SPV.0045 Special 0900. Portable Speed Trailer	1,766.000 DAY	_____.____	_____.____
1258	SPV.0060 Special 0101. Concrete Barrier Transition Type G1	1.000 EACH	_____.____	_____.____
1260	SPV.0060 Special 0102. Concrete Barrier Transition Type G2	1.000 EACH	_____.____	_____.____
1262	SPV.0060 Special 0103. Concrete Barrier Transition Type G3	1.000 EACH	_____.____	_____.____
1264	SPV.0060 Special 0104. Concrete Barrier Transition Type G4	1.000 EACH	_____.____	_____.____
1266	SPV.0060 Special 0105. Concrete Barrier Transition Type G5	2.000 EACH	_____.____	_____.____
1268	SPV.0060 Special 0110. Concrete Barrier Transition Type M1	1.000 EACH	_____.____	_____.____
1270	SPV.0060 Special 0112. Concrete Barrier Transition Type S42C to S56C	2.000 EACH	_____.____	_____.____
1272	SPV.0060 Special 0115. Concrete Barrier Type S42 End Anchor	51.000 EACH	_____.____	_____.____
1274	SPV.0060 Special 0120. Mobilizations Emergency Pavement Repair	20.000 EACH	_____.____	_____.____
1276	SPV.0060 Special 0125. Section Corner Monuments	1.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1278	SPV.0060 Special 0130. Cross Stitching Longitudinal Joints and Cracks	700.000 EACH	_____.____	_____.____
1280	SPV.0060 Special 0150. Crack and Damage Survey Single or Double Unit Residential	43.000 EACH	_____.____	_____.____
1282	SPV.0060 Special 0155. Crack and Damage Survey Multi-Unit Residential	5.000 EACH	_____.____	_____.____
1284	SPV.0060 Special 0160. Crack and Damage Survey Commercial Public or Industrial	5.000 EACH	_____.____	_____.____
1286	SPV.0060 Special 0165. Maintain and Salvage Crash Cushions Temporary Left in Place	3.000 EACH	_____.____	_____.____
1288	SPV.0060 Special 0400. Marking Contrast Epoxy Special Marking Arrow	10.000 EACH	_____.____	_____.____
1290	SPV.0060 Special 0405. Remove Grooved In Pavement Marking Thermoplastic Arrows And Words	39.000 EACH	_____.____	_____.____
1292	SPV.0060 Special 0601. Baseline CPM Progress Schedule	1.000 EACH	_____.____	_____.____
1294	SPV.0060 Special 0602. Monthly CPM Progress Schedule Updates	32.000 EACH	_____.____	_____.____
1296	SPV.0060 Special 0603. Exposing Existing Infrastructure Paved Area	15.000 EACH	_____.____	_____.____
1298	SPV.0060 Special 0604. Exposing Existing Infrastructure Unpaved Area	15.000 EACH	_____.____	_____.____
1300	SPV.0060 Special 0910. Traffic Control Close-Open Freeway Entrance Ramp	449.000 EACH	_____.____	_____.____
1302	SPV.0060 Special 0916. Traffic Control Local Road Lane Closures	435.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1304	SPV.0060 Special 0917. Traffic Control Close-Open Freeway to Freeway System Ramp	56.000 EACH	_____.____	_____.____
1306	SPV.0060 Special 0918. Traffic Control Full Freeway Closure	150.000 EACH	_____.____	_____.____
1308	SPV.0060 Special 0920. Fixed Message Sign Portable Support Special	16.000 EACH	_____.____	_____.____
1310	SPV.0060 Special 0930. Dynamic Speed Display Sign	4.000 EACH	_____.____	_____.____
1312	SPV.0060 Special 0935. Moving Dynamic Speed Display Sign	4.000 EACH	_____.____	_____.____
1314	SPV.0060 Special 0940.Emergency Response to Traffic Incident Involving Concrete Barrier Temporary	40.000 EACH	_____.____	_____.____
1316	SPV.0060 Special 0945. Emergency Response to Traffic Incident Involving Crash Cushions	10.000 EACH	_____.____	_____.____
1318	SPV.0060 Special 0950. Temporary Concrete Barrier Gate 24-FT	2.000 EACH	_____.____	_____.____
1320	SPV.0060 Special 0955. Install State Furnished Sign	4.000 EACH	_____.____	_____.____
1322	SPV.0060 Special 1002. Poles Wood 60-FT	3.000 EACH	_____.____	_____.____
1324	SPV.0060 Special 1003. Poles Wood 35-FT	2.000 EACH	_____.____	_____.____
1326	SPV.0060 Special 1004. Wood Pole Lighting 60-FT	36.000 EACH	_____.____	_____.____
1328	SPV.0060 Special 1005. Wood Pole Lighting 35-FT	3.000 EACH	_____.____	_____.____
1330	SPV.0060 Special 1006. Concrete Bases Type B	48.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1332	SPV.0060 Special 1007. Concrete Bases Type C	3.000 EACH	_____.____	_____.____
1334	SPV.0060 Special 1008. Luminaires Utility HPS 400 Watts Floodlight	3.000 EACH	_____.____	_____.____
1336	SPV.0060 Special 1009. Luminaires Utility HPS 1000 Watts Floodlight	36.000 EACH	_____.____	_____.____
1338	SPV.0060 Special 2000. Removing Electrical Service Meter Breaker Pedestal	5.000 EACH	_____.____	_____.____
1340	SPV.0060 Special 2001. Removing Controller Cabinet	4.000 EACH	_____.____	_____.____
1342	SPV.0060 Special 2002. Removing Controller Cabinet Base	4.000 EACH	_____.____	_____.____
1344	SPV.0060 Special 2003. Removing Microwave Detector	3.000 EACH	_____.____	_____.____
1346	SPV.0060 Special 2004. Removing Ramp Control Signal Assembly Sidemount	6.000 EACH	_____.____	_____.____
1348	SPV.0060 Special 2005. Removing Ramp Control Signal Assembly Overhead	2.000 EACH	_____.____	_____.____
1350	SPV.0060 Special 2006. Removing Temporary Vehicle Detector Assembly	3.000 EACH	_____.____	_____.____
1352	SPV.0060 Special 2008. Salvage Solar Powered HAR Sign Assembly	1.000 EACH	_____.____	_____.____
1354	SPV.0060 Special 2009. Speed Warning Sign System	1.000 EACH	_____.____	_____.____
1356	SPV.0060 Special 2010. Temporary Poles Wood 40-Foot	3.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1358	SPV.0060 Special 2011. Temporary Poles Wood 60-Foot	2.000 EACH	_____.____	_____.____
1360	SPV.0060 Special 2012. Temporary Vehicle Detector Assembly	3.000 EACH	_____.____	_____.____
1362	SPV.0060 Special 2013. Ground Rod	6.000 EACH	_____.____	_____.____
1364	SPV.0060 Special 2014. Relocating Temporary Vehicle Detector Assembly	6.000 EACH	_____.____	_____.____
1366	SPV.0060 Special 2015. Refocus Vehicle Detector Assembly	27.000 EACH	_____.____	_____.____
1368	SPV.0060 Special 2016. Remove Pole	2.000 EACH	_____.____	_____.____
1370	SPV.0060 Special 2017. Install Temporary Traffic Camera Assembly	2.000 EACH	_____.____	_____.____
1372	SPV.0060 Special 2018. Install Salvaged Solar Powered HAR Sign Assembly	1.000 EACH	_____.____	_____.____
1374	SPV.0060 Special 2019. Remove Temporary Traffic Camera Assembly	2.000 EACH	_____.____	_____.____
1376	SPV.0060 Special 2020. Signal Assembly Ramp Control Sidemount	3.000 EACH	_____.____	_____.____
1378	SPV.0060 Special 2021. Signal Assembly Ramp Control Overhead	6.000 EACH	_____.____	_____.____
1380	SPV.0060 Special 2022. Signal Assembly Advanced Flasher Type 1	6.000 EACH	_____.____	_____.____
1382	SPV.0060 Special 3001. Type 9 & 10 Special Traffic Signal Base	3.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1384	SPV.0060 Special 3002. Transport and Install Poles Type 9 Special	2.000 EACH	_____.____	_____.____
1386	SPV.0060 Special 3003. Transport and Install Poles Type 10	8.000 EACH	_____.____	_____.____
1388	SPV.0060 Special 3004. Transport and Install Poles Type 10 Special	1.000 EACH	_____.____	_____.____
1390	SPV.0060 Special 3005. Transport and Install Monotube Arms 15-FT	2.000 EACH	_____.____	_____.____
1392	SPV.0060 Special 3006. Transport and Install Monotube Arms 20-FT	1.000 EACH	_____.____	_____.____
1394	SPV.0060 Special 3007. Transport and Install Monotube Arms 25-FT	2.000 EACH	_____.____	_____.____
1396	SPV.0060 Special 3008. Transport and Install Monotube Arms 30-FT	3.000 EACH	_____.____	_____.____
1398	SPV.0060 Special 3009. Transport and Install Monotube Arms 35- FT	1.000 EACH	_____.____	_____.____
1400	SPV.0060 Special 3010. Transport and Install Monotube Arms 40-FT	2.000 EACH	_____.____	_____.____
1402	SPV.0060 Special 3011. Transport and Install Luminaire Arms Steel 8- FT	6.000 EACH	_____.____	_____.____
1404	SPV.0060 Special 3012. Transport and Install Luminaire Arms Steel 15-FT	9.000 EACH	_____.____	_____.____
1406	SPV.0060 Special 3013.Covering Existing Traffic Signal Faces	3.000 EACH	_____.____	_____.____
1408	SPV.0060 Special 3101. Removing Monotube Concrete Bases	4.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1410	SPV.0060 Special 3102. Traffic Signal Controller Programming	1.000 EACH	_____.____	_____.____
1412	SPV.0060 Special 3103. EVP Detector Type I	4.000 EACH	_____.____	_____.____
1414	SPV.0060 Special 3104. EVP Discriminator Type IV	1.000 EACH	_____.____	_____.____
1416	SPV.0060 Special 3105. EVP Confirmation Light Assembly Type I	4.000 EACH	_____.____	_____.____
1418	SPV.0060 Special 3106. Concrete Control Cabinet Bases Type 9 special Super P	1.000 EACH	_____.____	_____.____
1420	SPV.0060 Special 4008. Pile Dynamic Analyzer (PDA) Testing	8.000 EACH	_____.____	_____.____
1422	SPV.0060 Special 4028. Pile Dynamic Analyzer (PDA) Restrikes	8.000 EACH	_____.____	_____.____
1424	SPV.0060 Special 4048. Case Pile Wave Analysis Program (CAP/WAP) Evaluation	4.000 EACH	_____.____	_____.____
1426	SPV.0060 Special 4068. Bearing Pads Elastomeric Special Temporary	50.000 EACH	_____.____	_____.____
1428	SPV.0060 Special 4080. Bearing High Load Multi-Rotational Guided	8.000 EACH	_____.____	_____.____
1430	SPV.0060 Special 4088. Bearings High-Load Multi-Rotational T-Guided UPRR	4.000 EACH	_____.____	_____.____
1432	SPV.0060 Special 4108. Bearings High-Load Multi-Rotational Non-Guided UPRR	4.000 EACH	_____.____	_____.____
1434	SPV.0060 Special 4128. Bearings High-Load Multi-Rotational L-Guided UPRR	4.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1436	SPV.0060 Special 4148. Thermal Integ Profiler (TIP) Testing, Drilled Foundation Shaft 59.06-Inch	4.000 EACH	_____.____	_____.____
1438	SPV.0060 Special 4168. Thermal Integrity Profiler (TIP) Testing, Wall Secant Pile 59.06-Inch	6.000 EACH	_____.____	_____.____
1440	SPV.0060 Special 4171. Crosshole Sonic Log (CSL) Testing, Drilled Foundation Shaft 59.06-Inch	4.000 EACH	_____.____	_____.____
1442	SPV.0060 Special 4172. Crosshole Sonic Log (CSL) Testing, Wall Secant Pile 59.06-Inch	72.000 EACH	_____.____	_____.____
1444	SPV.0060 Special 4173. Crosshole Sonic Log (CSL) Testing, Wall Tangent Pile 36-Inch	90.000 EACH	_____.____	_____.____
1446	SPV.0060 Special 4175. Tieback Anchors	677.000 EACH	_____.____	_____.____
1448	SPV.0060 Special 4180. Tieback Anchors Performance Tests	35.000 EACH	_____.____	_____.____
1450	SPV.0060 Special 4181. Pile Integrity Testing (PIT), Drilled Foundation Shaft 59.06-Inch	4.000 EACH	_____.____	_____.____
1452	SPV.0060 Special 4182. Pile Integrity Testing (PIT), Wall Secant Pile 59.06-Inch	6.000 EACH	_____.____	_____.____
1454	SPV.0060 Special 4185. Anchor Assemblies Noise Barrier Structures	204.000 EACH	_____.____	_____.____
1456	SPV.0060 Special 4190. Anchor Slab Inlet Cover Special	6.000 EACH	_____.____	_____.____
1458	SPV.0060 Special 4195. Fire Hydrant Sign Mounting	8.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1460	SPV.0060 Special 5100. Sanitary Manhole Type A 48-Inch	4.000 EACH	_____.____	_____.____
1462	SPV.0060 Special 5101. Sanitary Manhole Type A 60-Inch	2.000 EACH	_____.____	_____.____
1464	SPV.0060 Special 5102. Sanitary Manhole Type D	2.000 EACH	_____.____	_____.____
1466	SPV.0060 Special 5103. Abandoning Sanitary Manhole	5.000 EACH	_____.____	_____.____
1468	SPV.0060 Special 5104. Adjusting Sanitary Manhole	29.000 EACH	_____.____	_____.____
1470	SPV.0060 Special 5200. Adjusting Water Valve Boxes	19.000 EACH	_____.____	_____.____
1472	SPV.0060 Special 5210. Permanent Connection to Existing 6-Inch Water Main	8.000 EACH	_____.____	_____.____
1474	SPV.0060 Special 5211. Permanent Connection to Existing 8-Inch Water Main	7.000 EACH	_____.____	_____.____
1476	SPV.0060 Special 5212. Permanent Connection to Existing 12-Inch Water Main	2.000 EACH	_____.____	_____.____
1478	SPV.0060 Special 5213. Permanent Connection to Existing 16-Inch Water Main	2.000 EACH	_____.____	_____.____
1480	SPV.0060 Special 5214. Permanent Connection to Existing 24-Inch Water Main	4.000 EACH	_____.____	_____.____
1482	SPV.0060 Special 5260. Hydrant Assembly	13.000 EACH	_____.____	_____.____
1484	SPV.0060 Special 5265. Remove Hydrant	13.000 EACH	_____.____	_____.____
1486	SPV.0060 Special 5275. Polyethylene Water Service 1.25-Inch Length 0'-15'	2.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1488	SPV.0060 Special 5276. Polyethylene Water Service 1.25-Inch Length 15.1'-25'	6.000 EACH	_____.____	_____.____
1490	SPV.0060 Special 5277. Polyethylene Water Service 1.25-Inch Length 25.1'-45'	21.000 EACH	_____.____	_____.____
1492	SPV.0060 Special 5278. Polyethylene Water Service 1.5-Inch Length 15.1-25'	1.000 EACH	_____.____	_____.____
1494	SPV.0060 Special 5279. Polyethylene Water Service 2-Inch Length 15.1'-25'	1.000 EACH	_____.____	_____.____
1496	SPV.0060 Special 5290. Resilient Wedge Gate Valve 6-Inch	1.000 EACH	_____.____	_____.____
1498	SPV.0060 Special 5291. Resilient Wedge Gate Valve 8-Inch	24.000 EACH	_____.____	_____.____
1500	SPV.0060 Special 5292. Resilient Wedge Gate Valve 12-Inch	2.000 EACH	_____.____	_____.____
1502	SPV.0060 Special 5293. Butterfly Valve 16-Inch	8.000 EACH	_____.____	_____.____
1504	SPV.0060 Special 5294. Butterfly Valve 24-Inch	3.000 EACH	_____.____	_____.____
1506	SPV.0060 Special 6001. Sign Support Special Mounting	28.000 EACH	_____.____	_____.____
1508	SPV.0060 Special 8004. Inlet Covers Type 57	1.000 EACH	_____.____	_____.____
1510	SPV.0060 Special 8007. Reconnect Storm Sewer Laterals	12.000 EACH	_____.____	_____.____
1512	SPV.0060 Special 8012. Manholes 9-FT Special	8.000 EACH	_____.____	_____.____
1514	SPV.0060 Special 8013. Manholes 10-FT Special	6.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1516	SPV.0060 Special 8014. Manholes 12-FT Special	2.000 EACH	_____.____	_____.____
1518	SPV.0060 Special 8015. Pipe Connection To Existing Structure	51.000 EACH	_____.____	_____.____
1520	SPV.0060 Special 8018. Removing Bulkhead	40.000 EACH	_____.____	_____.____
1522	SPV.0060 Special 8020. Fastening Sewer Access Covers	260.000 EACH	_____.____	_____.____
1524	SPV.0060 Special 8022. Sawing Concrete Barrier	2.000 EACH	_____.____	_____.____
1526	SPV.0060 Special 8050. Inlet Covers Type 27-M	169.000 EACH	_____.____	_____.____
1528	SPV.0060 Special 8065. Removing Cover Plates Left In Place	32.000 EACH	_____.____	_____.____
1530	SPV.0060 Special 8505. Storm Sewer Structure N2173	1.000 EACH	_____.____	_____.____
1532	SPV.0060 Special 8507. Storm Sewer Structure N2211	1.000 EACH	_____.____	_____.____
1534	SPV.0075 Special 0601. Pavement Cleanup Project 1060-33-84	5,000.000 HRS	_____.____	_____.____
1536	SPV.0075 Special 0602. Pavement Cleanup Project 1060-34-77	475.000 HRS	_____.____	_____.____
1538	SPV.0075 Special 4008. Obstructions Drilled Foundation Shaft	6.000 HRS	_____.____	_____.____
1540	SPV.0075 Special 4048. Obstructions Wall Secant Pile	36.000 HRS	_____.____	_____.____
1542	SPV.0075 Special 4050. Obstructions Wall Tangent Pile	5.000 HRS	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1544	SPV.0075 Special 4055. Obstructions Foundation Drilling	45.000 HRS	_____.____	_____.____
1546	SPV.0075 Special 5100. Obstructions Trenchless Utility Construction	24.000 HRS	_____.____	_____.____
1548	SPV.0090 Special 0001. Removing Concrete Barrier Precast	4,694.000 LF	_____.____	_____.____
1550	SPV.0090 Special 0002. Maintain and Remove Concrete Barrier Temporary Precast	7,930.000 LF	_____.____	_____.____
1552	SPV.0090 Special 0003. Removing Modular Block Retaining Wall	245.000 LF	_____.____	_____.____
1554	SPV.0090 Special 0004. Removing Partial Modular Block Retaining Wall	266.000 LF	_____.____	_____.____
1556	SPV.0090 Special 0101. Concrete Curb & Gutter 31-Inch Integral	861.000 LF	_____.____	_____.____
1558	SPV.0090 Special 0102. Concrete Gutter 42-Inch	130.000 LF	_____.____	_____.____
1560	SPV.0090 Special 0103. Concrete Gutter 66-Inch	71.000 LF	_____.____	_____.____
1562	SPV.0090 Special 0105. Concrete Barrier Type S42C Special	5,276.000 LF	_____.____	_____.____
1564	SPV.0090 Special 0110. Galvanized Pipe Railing	9.000 LF	_____.____	_____.____
1566	SPV.0090 Special 0126. Pipe Underdrain 6-Inch Special	46,965.000 LF	_____.____	_____.____
1568	SPV.0090 Special 0127. Pipe Underdrain 10-Inch Special	165.000 LF	_____.____	_____.____
1570	SPV.0090 Special 0301. Heavy Duty Silt Fence	3,114.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1572	SPV.0090 Special 0400. Marking Contrast Epoxy 4-Inch	9,757.000 LF	_____.____	_____.____
1574	SPV.0090 Special 0401. Marking Contrast Epoxy 8-Inch	8,895.000 LF	_____.____	_____.____
1576	SPV.0090 Special 0405. Remove Pavement Marking 12-Inch	96.000 LF	_____.____	_____.____
1578	SPV.0090 Special 0410. Remove Grooved In Pavement Marking Thermoplastic Stop Bar	438.000 LF	_____.____	_____.____
1580	SPV.0090 Special 0414. Remove Pavement Marking Grooved Tape 4-Inch	1,379.000 LF	_____.____	_____.____
1582	SPV.0090 Special 0415. Remove Pavement Marking Grooved Tape 8-Inch	1,868.000 LF	_____.____	_____.____
1584	SPV.0090 Special 0600. Salvage Temporary Precast Concrete Barrier Left in Place	1,400.000 LF	_____.____	_____.____
1586	SPV.0090 Special 0800. Remove and Dispose of UPRR Track	6,142.000 LF	_____.____	_____.____
1588	SPV.0090 Special 0805. Construct 136LB ISHH CWR on Wood Ties	6,159.000 LF	_____.____	_____.____
1590	SPV.0090 Special 0810. Construct Double Inside Guard Rail	660.000 LF	_____.____	_____.____
1592	SPV.0090 Special 0900. Fence Temporary 6-FT	8,775.000 LF	_____.____	_____.____
1594	SPV.0090 Special 0910. Glare Screens Temporary	11,450.000 LF	_____.____	_____.____
1596	SPV.0090 Special 0920. Concrete Barrier Temporary Precast Anchoring	2,400.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1598	SPV.0090 Special 0925. Concrete Barrier Temporary Precast Anchored on Bridge	3,200.000 LF	_____.____	_____.____
1600	SPV.0090 Special 1001. Cable Aerial Aluminum 6 AWG Triplex	1,100.000 LF	_____.____	_____.____
1602	SPV.0090 Special 1002. Cable Aerial Aluminum 4 AWG Triplex	5,470.000 LF	_____.____	_____.____
1604	SPV.0090 Special 1003. Cable Aerial Aluminum 2 AWG Triplex	1,930.000 LF	_____.____	_____.____
1606	SPV.0090 Special 4008. Piling Steel HP 14-Inch X 89LB	1,500.000 LF	_____.____	_____.____
1608	SPV.0090 Special 4009. Piling Steel HP 14-Inch x 117 LB	1,500.000 LF	_____.____	_____.____
1610	SPV.0090 Special 4028. Drilled Foundation Shaft 59.06-Inch	211.000 LF	_____.____	_____.____
1612	SPV.0090 Special 4035. Foundation Drilling	14,370.000 LF	_____.____	_____.____
1614	SPV.0090 Special 4048. Wall Secant Pile 59.06-Inch	4,520.000 LF	_____.____	_____.____
1616	SPV.0090 Special 4050. Wall Tangent Pile 36-Inch	11,900.000 LF	_____.____	_____.____
1618	SPV.0090 Special 4068. Handrail B-40-878	295.000 LF	_____.____	_____.____
1620	SPV.0090 Special 4069. Handrail R-40-622	325.000 LF	_____.____	_____.____
1622	SPV.0090 Special 4088. Handrail Temporary	836.000 LF	_____.____	_____.____
1624	SPV.0090 Special 4100. Fence Decorative Bridge	560.000 LF	_____.____	_____.____
1626	SPV.0090 Special 4105. Fence Decorative Wall	1,929.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1628	SPV.0090 Special 4200. Removing Existing Steel Piling	1,005.000 LF	_____.____	_____.____
1630	SPV.0090 Special 4205. Removing Existing Timber Piling	255.000 LF	_____.____	_____.____
1632	SPV.0090 Special 5001. Removing Concrete Encased Duct Package	1,543.000 LF	_____.____	_____.____
1634	SPV.0090 Special 5002. Removing Concrete Encased 21-Inch Sewer	231.000 LF	_____.____	_____.____
1636	SPV.0090 Special 5101. Sanitary Sewer 8-Inch PVC	546.000 LF	_____.____	_____.____
1638	SPV.0090 Special 5102. Sanitary Sewer 10-Inch PVC	701.000 LF	_____.____	_____.____
1640	SPV.0090 Special 5103. Sanitary Sewer 21-Inch PVC	410.000 LF	_____.____	_____.____
1642	SPV.0090 Special 5104. Steel Casing W/ Sanitary Sewer 10-Inch PVC Carrier	317.000 LF	_____.____	_____.____
1644	SPV.0090 Special 5105. Abandoning Sanitary Sewer 8-Inch	1,723.000 LF	_____.____	_____.____
1646	SPV.0090 Special 5106. Abandoning Sanitary Sewer 18-Inch	30.000 LF	_____.____	_____.____
1648	SPV.0090 Special 5107. Abandoning Sanitary Sewer 21-Inch	1,052.000 LF	_____.____	_____.____
1650	SPV.0090 Special 5225. Ductile Iron (DI) AWWA C-151 Class 55 Water Main 6-Inch	53.000 LF	_____.____	_____.____
1652	SPV.0090 Special 5226. Ductile Iron (DI) AWWA C-151 Class 55 Water Main 8-Inch	3,341.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1654	SPV.0090 Special 5227. Ductile Iron (DI) AWWA C-151 Class 55 Water Main 12-Inch	132.000 LF	_____.____	_____.____
1656	SPV.0090 Special 5228. Ductile Iron (DI) AWWA C-151 Class 55 Water Main 16-Inch	2,050.000 LF	_____.____	_____.____
1658	SPV.0090 Special 5229. Ductile Iron (DI) AWWA C-151 Class 55 Water Main 24-Inch	351.000 LF	_____.____	_____.____
1660	SPV.0090 Special 5239. Removing Water Main	44.000 LF	_____.____	_____.____
1662	SPV.0090 Special 5250. Abandon Existing 6-Inch Water Main	2,125.000 LF	_____.____	_____.____
1664	SPV.0090 Special 5251. Abandon Existing 8-Inch Water Main	436.000 LF	_____.____	_____.____
1666	SPV.0090 Special 5252. Abandon Existing 12-Inch Water Main	469.000 LF	_____.____	_____.____
1668	SPV.0090 Special 5253. Abandon Existing 16-Inch Water Main	687.000 LF	_____.____	_____.____
1670	SPV.0090 Special 8025. Pipe Underdrain Exploration	100.000 LF	_____.____	_____.____
1672	SPV.0090 Special 8026. Storm Sewer Lateral Exploration	100.000 LF	_____.____	_____.____
1674	SPV.0090 Special 8031. Precast Trench Drain	1,541.000 LF	_____.____	_____.____
1676	SPV.0090 Special 8036. Temporary Precast Trench Drain	2,355.000 LF	_____.____	_____.____
1678	SPV.0105 Special 0604. Survey Project 1060-33-84	LS	LUMP SUM	_____.____
1680	SPV.0105 Special 0605. Survey Project 1060-34-77	LS	LUMP SUM	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1682	SPV.0105 Special 1001. Maintenance of Lighting Systems	LS	LUMP SUM	_____.____
1684	SPV.0105 Special 1002. Lighting System Integrator	LS	LUMP SUM	_____.____
1686	SPV.0105 Special 1003. Lighting System Survey	LS	LUMP SUM	_____.____
1688	SPV.0105 Special 3001. Trans and Inst State Furn Traffic Signal Cab IH 41 SB Ramps & W. North Ave	LS	LUMP SUM	_____.____
1690	SPV.0105 Special 3002. Transport & Inst State Furn Traffic Sig Cab IH 41 NB on Ramp & W North Ave	LS	LUMP SUM	_____.____
1692	SPV.0105 Special 3003. Trans & Inst State Furn Emer Vehicle Preemp (EVP) Dete Heads W/ Con Beacon	LS	LUMP SUM	_____.____
1694	SPV.0105 Special 3004. Trans & Inst State Furn Emer Vehicle Preemp (EVP) Dete Heads W/ Con Beacon	LS	LUMP SUM	_____.____
1696	SPV.0105 Special 3005. Trans and Inst State Furn FO Cable PT 8-CT IH 41 SB on Ramp & W. North Ave	LS	LUMP SUM	_____.____
1698	SPV.0105 Special 3006. Trans and Inst State Furn FO Cable PT 8-CT IH 41 NB on Ramp & W. North Ave	LS	LUMP SUM	_____.____
1700	SPV.0105 Special 3101. Transport and Install State Furnished Municipal Traffic Signal Cabinet	LS	LUMP SUM	_____.____
1702	SPV.0105 Special 3102. Video Vehicle Detection System	LS	LUMP SUM	_____.____
1704	SPV.0105 Special 4008. Trial Wall Panel Secant Pile 59.06-Inch	LS	LUMP SUM	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1706	SPV.0105 Special 4010. Trial Wall Panel Tangent Pile 36-Inch	LS	LUMP SUM	_____.____
1708	SPV.0105 Special 4015. Track, Shoring, and Existing Structure Monitoring UPRR	LS	LUMP SUM	_____.____
1710	SPV.0105 Special 5245. Control of Water	LS	LUMP SUM	_____.____
1712	SPV.0105 Special 6001. Rectangular Rapid Flash Beacon (RRFB) System Station 730+00 NOG Right	LS	LUMP SUM	_____.____
1714	SPV.0105 Special 6002. Rectangular Rapid Flash Beacon (RRFB) System Station 734+00 NOB Right	LS	LUMP SUM	_____.____
1716	SPV.0105 Special 6003. Rectangular Rapid Flash Beacon (RRFB) System Station 734+00 NOB Left	LS	LUMP SUM	_____.____
1718	SPV.0105 Special 6004. Rectangular Rapid Flash Beacon (RRFB) System Station 726+00 NOB Right	LS	LUMP SUM	_____.____
1720	SPV.0105 Special 6005. Rectangular Rapid Flash Beacon (RRFB) System Station 725+50 NOG Right	LS	LUMP SUM	_____.____
1722	SPV.0105 Special 6006. Rectangular Rapid Flash Beacon (RRFB) System Station 725+50 NOG Left	LS	LUMP SUM	_____.____
1724	SPV.0105 Special 6007. Rectangular Rapid Flash Beacon (RRFB) System Station 732+00 NOA Right	LS	LUMP SUM	_____.____
1726	SPV.0105 Special 6008. Rectangular Rapid Flash Beacon (RRFB) System Station 732+00 NOA Left	LS	LUMP SUM	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1728	SPV.0105 Special 6009. Rectangular Rapid Flash Beacon (RRFB) System Station 122+50NO Right	LS	LUMP SUM	_____.____
1730	SPV.0105 Special 6010. Rectangular Rapid Flash Beacon (RRFB) System Station 738+00 NOC Right	LS	LUMP SUM	_____.____
1732	SPV.0105 Special 6011. Rectangular Rapid Flash Beacon (RRFB) System Station 738+00 NOC Left	LS	LUMP SUM	_____.____
1734	SPV.0105 Special 6020. Chevron Solar Powered Sign System Assembly Ramp MA	LS	LUMP SUM	_____.____
1736	SPV.0105 Special 6021. Chevron Solar Powered Sign System Assembly Ramp NOB	LS	LUMP SUM	_____.____
1738	SPV.0105 Special 6022. Chevron Solar Powered Sign System Assembly Ramp NOG	LS	LUMP SUM	_____.____
1740	SPV.0105 Special 8098. Control of Water Storm Sewer	LS	LUMP SUM	_____.____
1742	SPV.0110 Special 4001. Timber Lagging	149.000 MBM	_____.____	_____.____
1744	SPV.0135 Special 0100. Field Office Special	45.000 MON	_____.____	_____.____
1746	SPV.0135 Special 0601. Vibration Monitoring	32.000 MON	_____.____	_____.____
1748	SPV.0165 Special 4005. Temporary Wall Wire Faced Mechanically Stabilized Earth	4,270.000 SF	_____.____	_____.____
1750	SPV.0165 Special 4010. Prestressed Precast Concrete Wall Panel R-40-567	21,770.000 SF	_____.____	_____.____
1752	SPV.0165 Special 4015. Geocomposite Drain Board	43,930.000 SF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1754	SPV.0165 Special 4020. Concrete Staining Previously Constructed Structure	54,455.000 SF	_____.____	_____.____
1756	SPV.0165 Special 4028. Temporary Shoring Railroad Type A	5,886.000 SF	_____.____	_____.____
1758	SPV.0165 Special 4048. Temporary Shoring Railroad Type B	120.000 SF	_____.____	_____.____
1760	SPV.0165 Special 4060. Temporary Shoring Railroad Type CP	330.000 SF	_____.____	_____.____
1762	SPV.0165 Special 4069. Precast Concrete Modular Retaining Wall	3,340.000 SF	_____.____	_____.____
1764	SPV.0165 Special 4088. Precast Concrete Modular Wingwall	749.000 SF	_____.____	_____.____
1766	SPV.0165 Special 4090. Geocomposite Wall Drain	1,120.000 SF	_____.____	_____.____
1768	SPV.0165 Special 4100. Wall Concrete Panel Mechanically Stabilized Earth R-40-561	9,290.000 SF	_____.____	_____.____
1770	SPV.0165 Special 4101. Wall Concrete Panel Mechanically Stabilized Earth R-40-564	5,013.000 SF	_____.____	_____.____
1772	SPV.0165 Special 4102. Wall Concrete Panel Mechanically Stabilized Earth R-40-568	1,075.000 SF	_____.____	_____.____
1774	SPV.0165 Special 4103. Wall Concrete Panel Mechanically Stabilized Earth R-40-569	4,295.000 SF	_____.____	_____.____
1776	SPV.0165 Special 4104. Wall Concrete Panel Mechanically Stabilized Earth R-40-570	13,240.000 SF	_____.____	_____.____
1778	SPV.0165 Special 4105. Wall Concrete Panel Mechanically Stabilized Earth R-40-572	1,142.000 SF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1780	SPV.0165 Special 4106. Wall Concrete Panel Mechanically Stabilized Earth R-40-632	2,640.000 SF	_____.____	_____.____
1782	SPV.0165 Special 4107. Wall Concrete Panel Mechanically Stabilized Earth R-40-635	2,846.000 SF	_____.____	_____.____
1784	SPV.0180 Special 0101. Concrete Pavement 12-Inch Special	186,659.000 SY	_____.____	_____.____
1786	SPV.0180 Special 0102. Concrete Pavement HES 12-Inch Special	1,701.000 SY	_____.____	_____.____
1788	SPV.0180 Special 0103. Concrete Pavement 10-Inch Special	35,206.000 SY	_____.____	_____.____
1790	SPV.0180 Special 0105. Resin Binder High Friction Surface Treatment	2,757.000 SY	_____.____	_____.____
1792	SPV.0180 Special 0110. Pesticide Application	43,200.000 SY	_____.____	_____.____
1794	SPV.0180 Special 0301. Topsoil Special	176,099.000 SY	_____.____	_____.____
1796	SPV.0180 Special 0601. Soil Drying	68,000.000 SY	_____.____	_____.____
1798	SPV.0180 Special 0603. Concrete Pavement Repair Special	85.000 SY	_____.____	_____.____
1800	SPV.0180 Special 0604. Asphaltic Material Binder	8,074.000 SY	_____.____	_____.____
1802	SPV.0180 Special 4008. Membrane Waterproofing	2,050.000 SY	_____.____	_____.____
1804	SPV.0180 Special 4048. Asphalt Panels	3,617.000 SY	_____.____	_____.____
1806	SPV.0195 Special 0001. Fly Ash Stabilization	4,290.000 TON	_____.____	_____.____
1808	SPV.0195 Special 0002. Riprap Reach D Stone	2,000.000 TON	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1810	SPV.0195 Special 0004. Excavation, Hauling, and Disposal of Low-Level Contaminated Soil	39,449.000 TON	_____.____	_____.____
1812	SPV.0195 Special 0010. Base Aggregate Dense 1 1/4-Inch Restoration	4,700.000 TON	_____.____	_____.____
1814	SPV.0195 Special 0015. Stone No. 2 Special	640.000 TON	_____.____	_____.____
1816	SPV.0195 Special 0020. HMA Longitudinal Joint Repair	500.000 TON	_____.____	_____.____
1818	SPV.0195 Special 0601. Soil Drying Agent	1,500.000 TON	_____.____	_____.____
1820	SPV.0195 Special 4008. Base Aggregate Open Graded Special	9,530.000 TON	_____.____	_____.____
1822	SPV.0195 Special 4029. Backfill Modular Retaining Wall	2,900.000 TON	_____.____	_____.____
1824	SPV.0195 Special 5001. Removing Wood Poles UPRR	6.000 TON	_____.____	_____.____
1826	SPV.0035 Special 0004. Clay Cap	6,300.000 CY	_____.____	_____.____
1828	SPV.0060 Special 1010. Lighting Pull Boxes Wauwatosa 17-Inch x 30-Inch	12.000 EACH	_____.____	_____.____
1830	SPV.0060 Special 1011. Lighting Pull Boxes Wauwatosa 24-Inch x 36-Inch	2.000 EACH	_____.____	_____.____
1832	SPV.0060 Special 1012. 23-FT Standard Concrete Light Poles and Arms	13.000 EACH	_____.____	_____.____
1834	SPV.0060 Special 1013. Lighting Control Cabinet 240/480 - Wauwatosa	2.000 EACH	_____.____	_____.____
1836	SPV.0060 Special 1014. Luminaires Utility LED A (30K)	16.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1838	SPV.0060 Special 1015. Luminaires Utility LED C (30K)	19.000 EACH	_____._____	_____._____
1840	SPV.0090 Special 1004. Polyethylene Duct 1 1/4-Inch	950.000 LF	_____._____	_____._____
	Section: 0001		Total:	_____._____
			Total Bid:	_____._____

Wisconsin Department of Transportation

Division of Transportation Systems Development
Bureau of Project Development
4822 Madison Yards Way, 4th Floor South
Madison, WI 53705

Telephone: (608) 266-1631
Facsimile (FAX): (608) 266-8459

October 6, 2020

NOTICE TO ALL CONTRACTORS:

Proposal #01:

1060-33-84, WISC 2020 466
Zoo IC, USH 45
Swan Blvd to Burleigh Street
USH 45
Milwaukee County

1060-34-77
Zoo IC, North Avenue
118th Street to 116th Street
Loc Str
Milwaukee County

1100-18-73, WISC 2021 001
Zoo IC, Polymer Overlays
Zoo IC Mainline Bridges
Var Hwy
Milwaukee County

1100-18-76, WISC 2002 467
Zoo I/C Overpasses
Various Locations
Var Hwy
Milwaukee County

Letting of October 13, 2020

This is Addendum No. 04, which provides for the following:

Special Provisions:

Revised Special Provisions	
Article No.	Description
5	Prosecution and Progress
76	Excavation, Hauling, and Disposal of Petroleum Contaminated Soil, Item 205.0501.S
155	Excavation, Hauling, and Reuse of Low-Level Contaminated Soil, Item SPV.0035.0003
290	Fence Decorative Bridge, Item SPV.0090.4100; Fence Decorative Wall, Item SPV.0090.4105
343	Excavation, Hauling, and Disposal of Low-Level Contaminated Soil, Item SPV.0195.0004

Added Special Provisions	
Article No.	Description
357	Crash Cushions Temporary Low Maintenance, Item SPV.0060.0960
358	Temporary Access Gates at CPRR, Item SPV.0060.0170; Temporary Crossing at CPRR, Item SPV.0060.0171

Deleted Special Provisions	
Article No.	Description
264	Removing Partial Modular Block Retaining Wall, Item SPV.0090.0004

Schedule of Items:

Revised Bid Item Quantities					
Bid Item	Item Description	Unit	Old Quantity	Revised Quantity	Proposal Total
205.0100	Excavation Common	CY	411,558	30,167	441,725
305.0120	Base Aggregate Dense 1 ¼-Inch	TON	139,850	1,095	140,945
312.0110	Select Crushed Material	TON	238,376	1,281	239,657
455.0605	Tack Coat	GAL	15,347	757	16,104
465.0125	Asphaltic Surface Temporary	TON	26,041	3,184	29,225
501.1000.S	Ice Hot Weather Concreting	LB	120,021	90,000	210,021
603.3675	Concrete Barrier Transition Type V51 to S42	EACH	1	1	2
603.8000	Concrete Barrier Temporary Precast Delivered	LF	86,934	1,095	88,029
603.8125	Concrete Barrier Temporary Precast Installed	LF	138,124	1,095	139,219
614.0805	Crash Cushions Permanent Low Maintenance	EACH	22	-15	7
SPV.0035.0003	Excavation, Hauling, and Reuse of Low-Level Contaminated Soil	CY	12,310	-2,950	9,360
SPV.0180.0101	Concrete Pavement 12-Inch Special	SY	186,659	-28,487	158,172
SPV.0195.0004	Excavation, Hauling, and Disposal of Low-Level Contaminated Soil	TON	39,449	-18,993	20,516

Added Bid Item Quantities					
Bid Item	Item Description	Unit	Old Quantity	Revised Quantity	Proposal Total
450.4000	Cold Weather Paving	TON	0	25,312	25,312
SPV.0060.0170	Temporary Access Gates at CPRR	EACH	0	4	4
SPV.0060.0171	Temporary Crossing at CPRR	EACH	0	2	2
SPV.0060.0960	Crash Cushions Temporary Low Maintenance	EACH	0	22	22

Deleted Bid Item Quantities					
Bid Item	Item Description	Unit	Old Quantity	Revised Quantity	Proposal Total
SPV.0090.0004	Removing Partial Modular Block Retaining Wall	LF	266	-266	0

Plan Sheets:

Revised Plan Sheets	
Plan Sheet	Plan Sheet Title (brief description of changes to sheet)
44-45	Revised Station limits for Typical Temporary Pavement Sections
46	Added Typical Temporary Pavement Section
47	Revised Station limits for Typical Temporary Pavement Sections
66	Construction Detail – Revised detail notes

134	Plan Detail – Added notes for temporary crossing locations at CPRR
175-176	Added Stage 1A Asphaltic Surface Temporary in the IH 41 median; added HMA shoulder pavement from Stage 2B
177-179	Added HMA shoulder pavement from Stage 2B & 3
180	Added Stage 1A Asphaltic Surface Temporary in the IH 41 median; added HMA shoulder pavement from Stage 3
351	Storm Sewer – Updated backfill slurry detail
374	Revised Note
376	Revised Note
517	Signing Details – Revised text that was not displaying correctly
519	Signing Details – Revised text that was not displaying correctly
709	Revised Pier Barrier Transition Detail to add transition section east of pier
714	Revised Mayfair Road Closure Detail to include Concrete Barrier Temporary Precast and Crash Cushions Temporary Low Maintenance
728	Revised to callout base patching required to remove rumble strips prior to traffic shift Stage 1A
729-730	Revised work zone and lane lines
731	Revised to callout base patching required to remove rumble strips prior to traffic shift Stage 1A
740	Revised Utility Construction note on Stage 1B Overview
747	Revised work zone
801	Added Concrete Barrier Temporary Precast and Crash Cushion Temporary Low Maintenance for SB IH41 near Burleigh – Stage 2A
802	Revised Stage 2B Overview to turn on work zone hatching and fix Station reference on typical section
812	Added Concrete Barrier Temporary Precast and Crash Cushion Temporary Low Maintenance for SB IH41 near Burleigh – Stage 2B
820	Added note for Temporary Asphalt shoulder pavement in Stage 3
972	Miscellaneous Quantities – Removed SPV.0090.0004 for the table
975	Miscellaneous Quantities - Revised Base Aggregate Dense 1 ¼-Inch and Select Crushed Material quantity
977-978	Miscellaneous Quantities – Updated Concrete Pavement 12-Inch Special quantity
981	Miscellaneous Quantities – Removed quantities found elsewhere asterisk
982-983	Miscellaneous Quantities - Revised Asphaltic Surface Temporary and Tack Coat quantities and added HMA Cold Weather Paving Item
1012	Miscellaneous Quantities – Update earthwork summary table
1014	Miscellaneous Quantities – Update earthwork summary table
1098	Miscellaneous Quantities - Revised quantity for Concrete Barrier Transition Type V51 to S42
1099-1101	Miscellaneous Quantities - Revised Concrete Barrier Temporary Precast quantity
1102	Miscellaneous Quantities - Revised item to Crash Cushions Temporary Low Maintenance
1744	B-40-793. See revised plans
2491-2492	Earthwork – Update table

Added Plan Sheets	
Plan Sheet	Plan Sheet Title (brief description of why sheet was added)
66A	Construction Detail – Temporary crossing at CPRR
1011A	Miscellaneous Quantities – Items for temporary railroad crossing at CPRR
1421A	Add SDD 51-Inch Vertical Shape Concrete Barrier to 42-Inch Single Slope Concrete Barrier Transition

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

1060-33-84, 1060-34-77, 1100-18-73, & 1100-18-76

October 6, 2020

Special Provisions

5. Prosecution and Progress.

Add the following to the end of section titled **J General***:*

The contractor shall provide a maintained graded access for the UPRR track crews off North Ave for the UPRR construction equipment to access the track throw area.

For base patching operations, where the existing concrete pavement has an asphalt overlay, the base patch shall be constructed from top of asphalt surface to bottom of existing concrete pavement.

Replace the entire section titled **L.11 Interim Completion of Work September 1, 2022** *with the following:*

L.11 Interim Completion of Work September 1, 2022

Supplement standard spec 108.11 as follows:

If the contractor fails to complete HMA paving (except surface layer), concrete curb and gutter, pavement marking, signing, sidewalk and restoration work on North Avenue between 116th Street and Mayfair Road as shown in Stages 1A and 1B of the North Avenue staging plans, prior to 12:01 AM on September 2, 2022, the department will assess the contractor $10,000.00 in interim liquidated damages per day for each calendar day after 12:01 AM on September 2, 2022, that North Avenue is not open to one lane eastbound and two lanes westbound. An entire calendar day will be charged for any period of time within a calendar day that North Avenue remains closed beyond 12:01 AM, on September 2, 2022.

76. Excavation, Hauling, and Disposal of Petroleum Contaminated Soil, Item 205.0501.S.

Replace the entire section titled **A.2 Notice to the Contractor – Contaminated Soil Locations** *with the following:*

The department completed testing for soil and groundwater contamination for locations within this project where excavation is required. Testing indicated that petroleum-contaminated soil is present at the following locations the plans show:

- Station 16+10RDE to 16+55RDE from 10 feet right of reference line to project limits right, from approximately 0 to 12+ feet below grade. Soil excavated from this area will require off-site bioremediation. The estimated volume of contaminated soil to be excavated at this location is 194 cubic yards (approximately 330 tons using a conversion factor of 1.7 tons per cubic yard).
- Station 16+25RDE to 16+90RDE from 60 feet left of reference line to 10 feet right of reference line, from approximately 1 to 16 feet below grade and 28 to 32 feet below grade. Soil excavated from this area will require off-site bioremediation. The estimated volume of contaminated soil to be excavated at this location is 963 cubic yards (approximately 1,637 tons using a conversion factor of 1.7 tons per cubic yard).

- Station 16+90RDE to 17+50RDE from 60 feet left of reference line to project limits right, from approximately 1 to 16 feet below grade and 28 to 32 feet below grade. Soil excavated from this area will require off-site bioremediation. The estimated volume of contaminated soil to be excavated at this location is 2,043 cubic yards (approximately 3,473 tons using a conversion factor of 1.7 tons per cubic yard).
- Station 19+25RDE to 20+50RDE from 60 feet left of reference line to project limits right, from approximately 1 to 12 feet below grade and 27 to 31 feet below grade. Soil excavated from this area will require off-site bioremediation. The estimated volume of contaminated soil to be excavated at this location is 3,394 cubic yards (approximately 5,770 tons using a conversion factor of 1.7 tons per cubic yard).
- Station 111+10NO to 111+70NO from 30 feet left of reference line to 40 feet right of reference line from approximately 4 feet to 16 feet below grade, estimated 175 cubic yards or 298 tons.
- Station 111+70NO to 112+65NO from 5 feet left of reference line to 20 feet right of reference line from approximately 4 feet to 16 feet below grade, estimated 285 cubic yards or 484 tons.

155. Excavation, Hauling, and Reuse of Low-Level Contaminated Soil, Item SPV.0035.0003.

Replace the entire section titled **A.2 Notice to the Contractor – Impacted Soil Locations** *with the following:*

The department completed testing for soil contamination at locations within this project where excavation is required. Testing indicated that low-level petroleum- or metal (arsenic and lead)-contaminated soil is present at the following locations as shown on the plans:

- Station 12+65RDE to 13+55RDE from 10 feet right of reference line to project limits right, from approximately 0 to 4 feet below grade. Approximately 106 cubic yards (approximately 181 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.

- Station 13+55RDE to 16+10RDE from 10 feet right of reference line to project limits right, from approximately 0 to 12+ feet below grade. Approximately 894 cubic yards (approximately 1,520 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.

- Station 16+55RDE to 17+25RDE from 10 feet right of reference line to project limits right, from approximately 0 to 12+ feet below grade. Approximately 360 cubic yards (approximately 612 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.

    - Station 110+15NO to 113+00NO from 100 feet left of reference line to 90 feet right of reference line, from approximately 1 to 16+ feet below grade. Approximately 8,000 cubic yards (approximately 13,600 tons at an estimated 1.7 tons per cubic yard).

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.

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.

If dewatering is required at the above location, conduct the dewatering according to Section C below.

264. DELETED

290. Fence Decorative Bridge, Item SPV.0090.4100; Fence Decorative Wall, Item SPV.0090.4105.

Replace the second paragraph under **C Construction***, and replace with the following:*

Provide a full sized painted 6-foot by 10-foot long fence test panel. Deliver the test panel to the job site within 120 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.

343. Excavation, Hauling, and Disposal of Low-Level Contaminated Soil, Item SPV.0195.0004.

Replace the entire section titled **A.2 Notice to the Contractor – Contaminated Soil Location** *with the following:*

The department and others completed testing for soil and groundwater contamination for locations within this project where excavation is required. Testing indicated that low-level petroleum- or metal (arsenic and lead)-contaminated soil is present at the following locations as shown on the plans:

- Station 109+75NO to 110+15NO from 45 feet to 95 feet left of reference line, from approximately 1 to 14 feet below grade. Approximately 534 cubic yards (approximately 908 tons at an estimated 1.7 tons per cubic yard).
- Station 110+15NO to 113+00NO from 100 feet left of reference line to 90 feet right of reference line, from approximately 1 to 16+ feet below grade. Approximately 11,534 cubic yards (approximately 19,608 tons at an estimated 1.7 tons per cubic yard).

If contaminated soils are encountered elsewhere on the project, terminate excavation activities in the area and notify the engineer.
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.
If dewatering is required at the above location, conduct the dewatering according to Section C below.

357. Crash Cushions Temporary Low Maintenance, Item SPV.0060.0960.

A Description

This special provision describes providing and removing Crash Cushions Temporary Low Maintenance in accordance to pertinent requirements of standard spec 614.

B Materials

Use materials as described in standard spec 614.2 for the installation of temporary crash cushions, except provide crash cushions meeting the requirements of Crash Cushions Permanent Low Maintenance from the department's APL.

C Construction

Perform work as specified in standard spec 614.3.

D Measurement

The department will measure Crash Cushions Temporary Low Maintenance as each temporary crash cushion, 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.0060.0960	Crash Cushions Temporary Low Maintenance	EACH

Payment is full compensation for providing crash cushions; for the foundation pads, connections, transitions, and backup blocks; for maintaining the crash cushions; for removing and disposing of the crash cushions when no longer needed.

358. Temporary Access Gates at CPRR, Item SPV.0060.0170; Temporary Crossing at CPRR, Item SPV.0060.0171.

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 railroad tracks, in-between the tracks and through the gate. The track crossing will be installed by the railroad. 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 at CPRR and Temporary Crossing at CPRR as each individual item, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

SPV.0060.0170	Temporary Access Gates at CPRR	EACH
SPV.0060.0171	Temporary Crossing at CPRR	EACH

Payment for Temporary Access Gates at CPRR is full compensation for furnishing all materials; for erecting posts and gates; and for removing all items discussed in this special provision.

Payment for Temporary Crossing at CPRR is full compensation for finishing all materials for constructing any necessary approach work; for constructing any drainage measures; and for removing all items discussed in this special provision.

Schedule of Items
Attached, dated October 6, 2020, are the revised Schedule of Items Pages 5, 7, 8, 21, 25, 43, and 55 – 66.

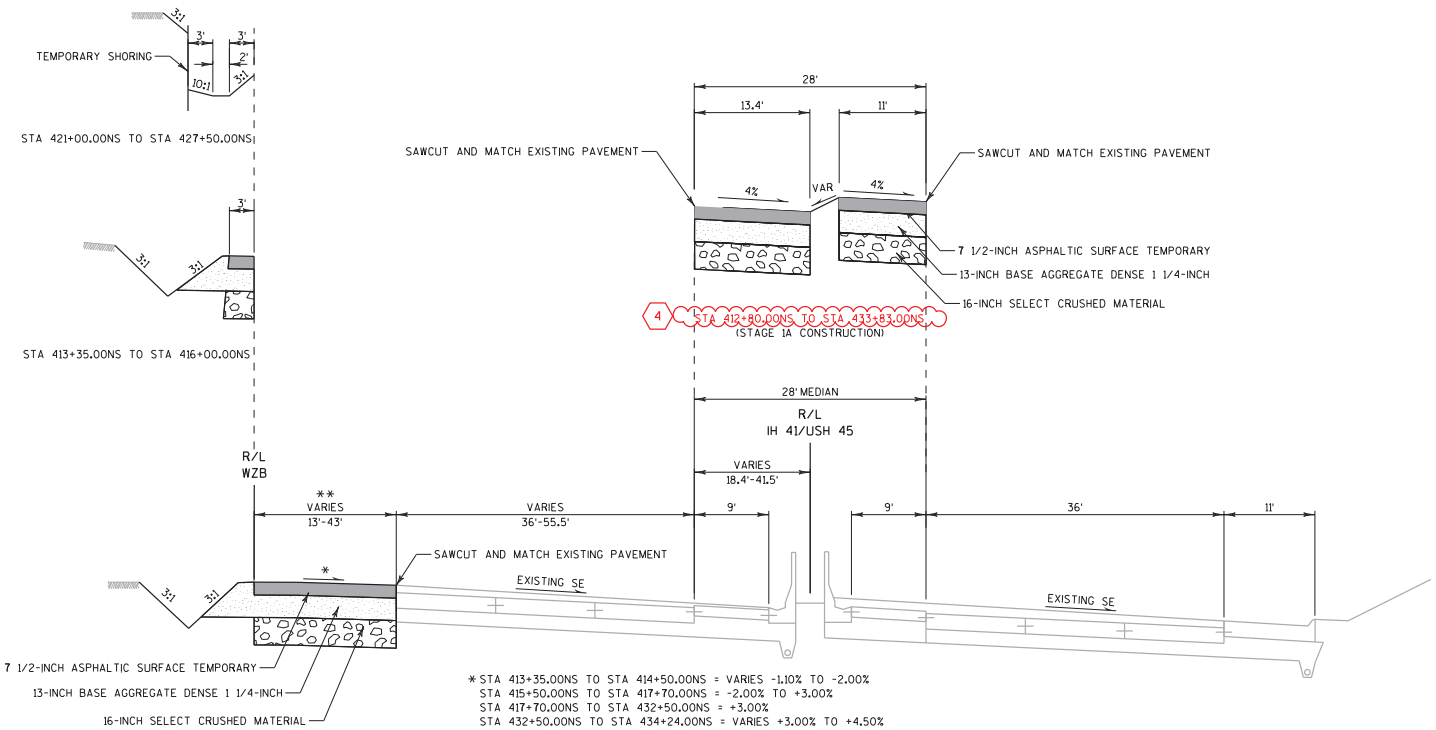
Plan Sheets
The following 8½ x 11-inch sheets are attached and made part of the plans for this proposal:

1060-33-84

Revised: 44-47, 66, 134, 175-180, 351, 374, 376, 517, 519, 709, 714, 728-731, 740, 747, 801, 802, 812, 820, 972, 975, 977-978, 981-983, 1012, 1014, 1098-1102, 1744, 2491-2492

Added: 66A, 1011A, 1421A

END OF ADDENDUM



* STA 413+35.00NS TO STA 414+50.00NS = VARIES -1.10% TO -2.00%
STA 415+50.00NS TO STA 417+70.00NS = -2.00% TO +3.00%
STA 417+70.00NS TO STA 432+50.00NS = +3.00%
STA 432+50.00NS TO STA 434+24.00NS = VARIES +3.00% TO +4.50%

** MAINTAIN MINIMUM VERTICAL CLEARANCE OF 15'-4" TO TEMPORARY SHOOFLY STRUCTURE AND MINIMUM 14'-10" INTERIM VERTICAL CLEARANCE TO NEW UPRR BRIDGE (B-40-878) SACRIFICIAL BEAM.

TYPICAL TEMPORARY PAVEMENT SECTION

IH 41/USH 45

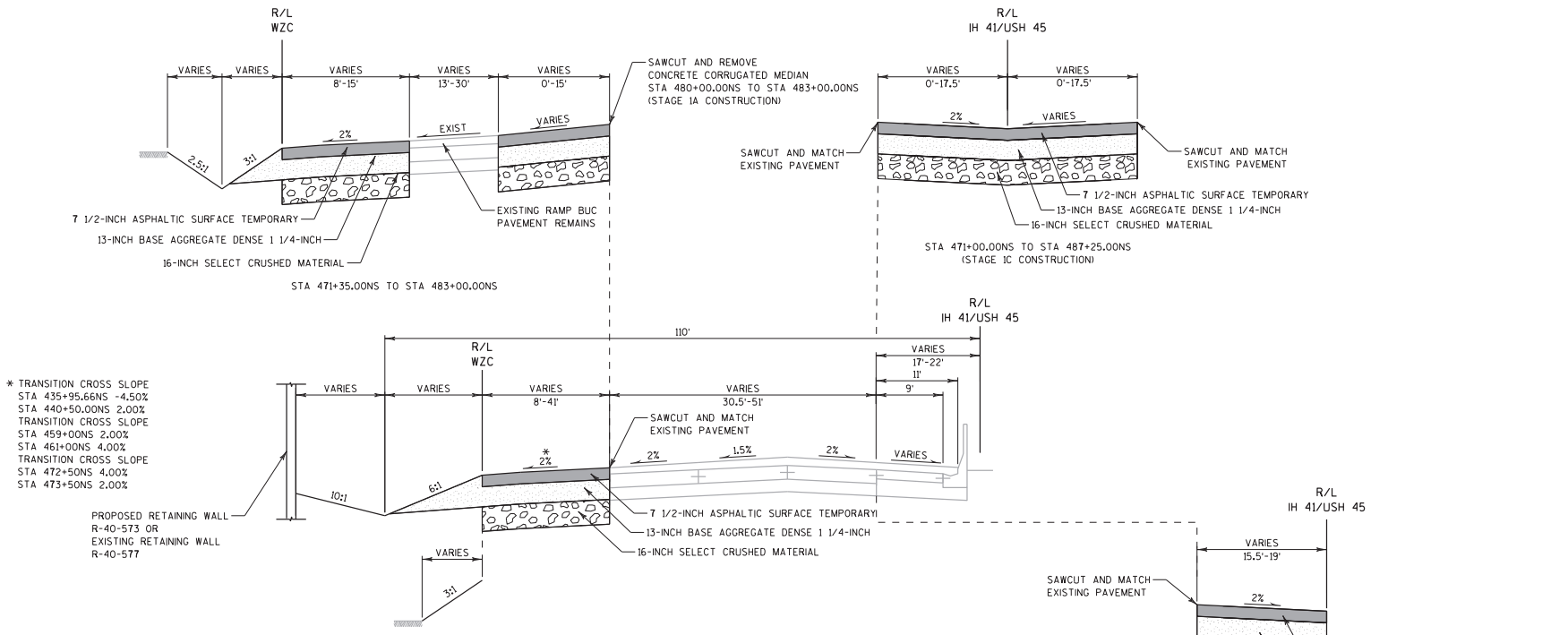
STA 413+35.00NS TO STA 434+24.00NS
(STAGE 1C CONSTRUCTION)

NOTES

1. WHERE MATCH EXISTING PAVEMENT, VERIFY ELEVATIONS SHOWN ON THE CROSS SECTIONS AND ADJUST AS NECESSARY.

Addendum No. 04
ID 1060-33-84
Revised Sheet 44
October 6, 2020

PROJECT NO: 1060-33-84	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SHEET 44	E

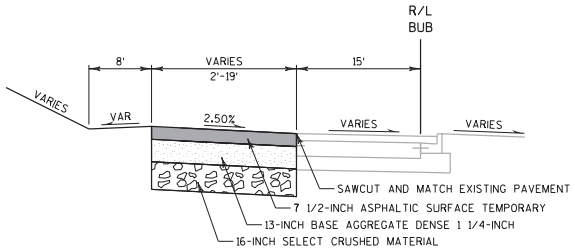


NOTES

1. WHERE MATCH EXISTING PAVEMENT, VERIFY ELEVATIONS SHOWN ON THE CROSS SECTIONS AND ADJUST AS NECESSARY.

Addendum No. 04
ID 1060-33-84
Revised Sheet 45
October 6, 2020

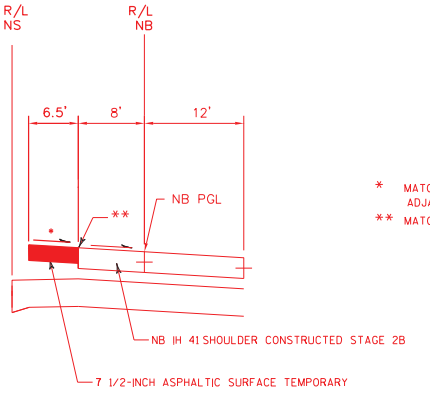
PROJECT NO: 1060-33-84	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SHEET 45	E



TYPICAL TEMPORARY PAVEMENT SECTION

IH 41/USH 45

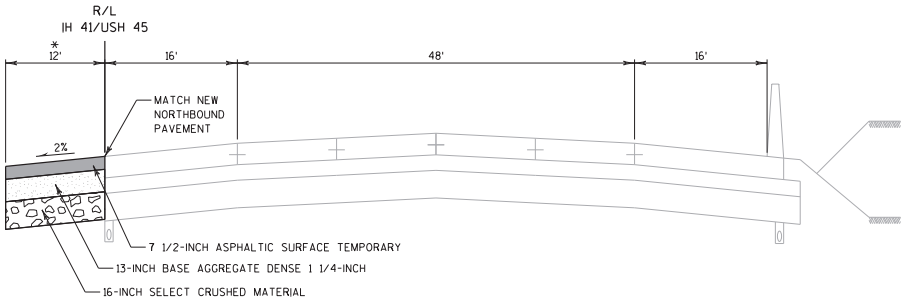
STA 781+28.80BUB TO STA 784+00.00BUB
(STAGE 2A CONSTRUCTION)



TYPICAL TEMPORARY PAVEMENT SECTION

IH 41/USH 45

STA 412+58NS TO STA 428+00NS
(STAGE 2B CONSTRUCTION)
STA 428+00NS TO STA 441+14NS
(STAGE 3 CONSTRUCTION)



* WIDTH VARIES 12' TO 2'
STA 392+50.00NS TO STA 394+00.00NS

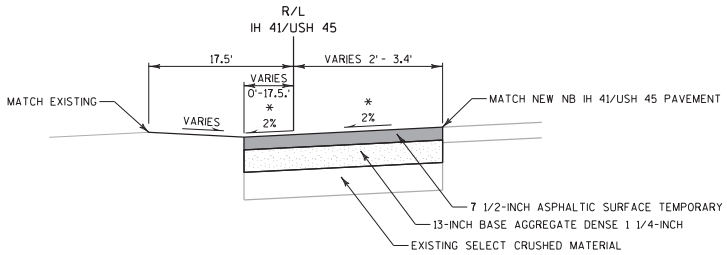
TYPICAL TEMPORARY PAVEMENT SECTION

IH 41/USH 45

STA 386+00.00NS TO STA 394+00.00NS
(STAGE 3 CONSTRUCTION FOR STAGE 4)

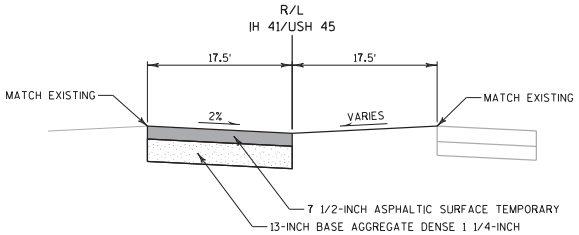
Addendum No. 04
ID 1060-33-84
Revised Sheet 46
October 6, 2020

PROJECT NO: 1060-33-84	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SHEET 46	E



* STA 472+00.00NS TO STA 474+00.00NS 2.00%
STA 474+00.00NS TO STA 475+00.00NS VARIES 2.00% TO +1.00%
STA 475+00.00NS TO STA 477+00.00NS +1.00%

TYPICAL TEMPORARY PAVEMENT SECTION
IH 41/USH 45
STA 472+00.00NS TO STA 477+00.00NS
(STAGE 3 CONSTRUCTION FOR STAGE 4)

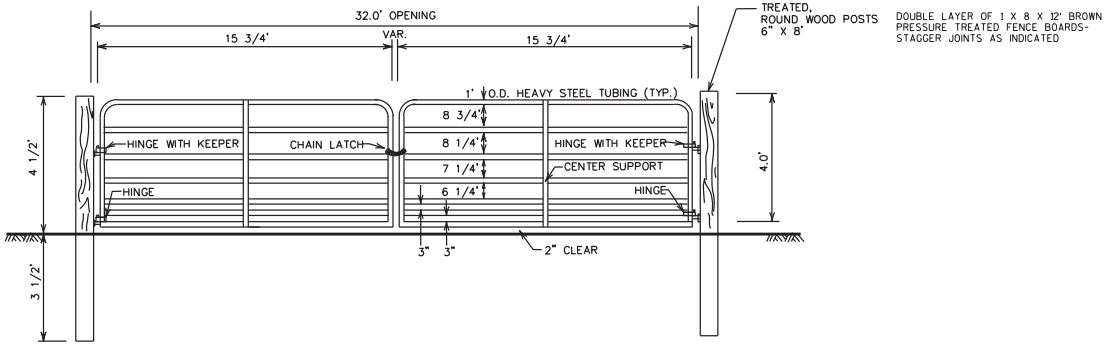


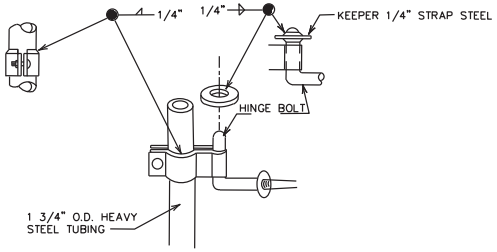
TYPICAL TEMPORARY PAVEMENT SECTION
IH 41/USH 45
4 STA 481+00.00NS TO STA 485+25.00NS
(CONSTRUCTED STAGE 3 FOR STAGE 4)

Addendum No. 04
ID 1060-33-84
Revised Sheet 47
October 6, 2020

NOTES

1. WHERE MATCH EXISTING PAVEMENT, VERIFY ELEVATIONS SHOWN ON THE CROSS SECTIONS AND ADJUST AS NECESSARY.

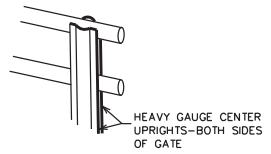




WRAP-AROUND HINGE DETAIL

NOTES

1. KEEPER TO BE ATTACHED TO TOP HINGE OF EACH GATE ONLY.
2. KEEPER SHALL BE FITTED AFTER THE GATE IS HUNG IN PLACE.
3. KEEPER TO BE OF SUCH DIMENSIONS TO PROVIDE CLEARANCE FOR LATERAL SWING.
4. DRILL HOLE IN KEEPER OF SUFFICIENT DIAMETER TO PROVIDE SNUG FIT OVER HINGE BOLT.
5. EXACT LOCATION OF GATE TO LINE UP WITH TEMPORARY RAILROAD CROSSING.
6. A 1"X4' LONG STEEL REINFORCEMENT ROD SHALL BE EMBEDDED 3' INTO THE GROUND AT EACH GATE TO PREVENT THE GATES FROM SWINGING TOWARDS THE TRACKS.



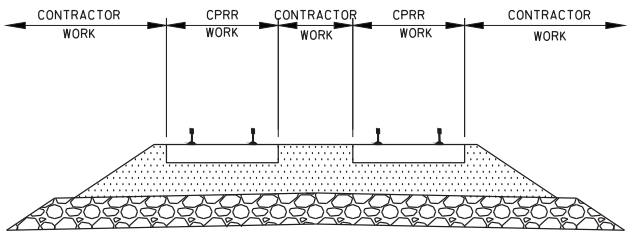
CENTER SUPPORT DETAIL

Addendum No. 04
ID 1060-33-84
Revised Sheet 66
October 6, 2020

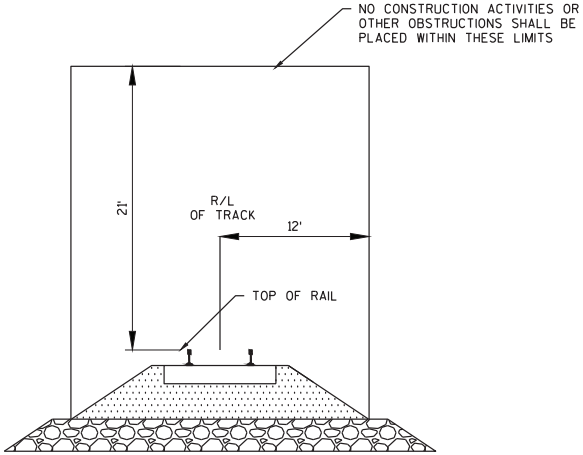
4

TEMPORARY ACCESS GATES DETAIL

SEE PLAN DETAILS FOR TEMPORARY CROSSING LOCATIONS
CANADIAN PACIFIC RAILWAY



TEMPORARY CONSTRUCTION CROSSING DETAIL
CANADIAN PACIFIC RAILWAY



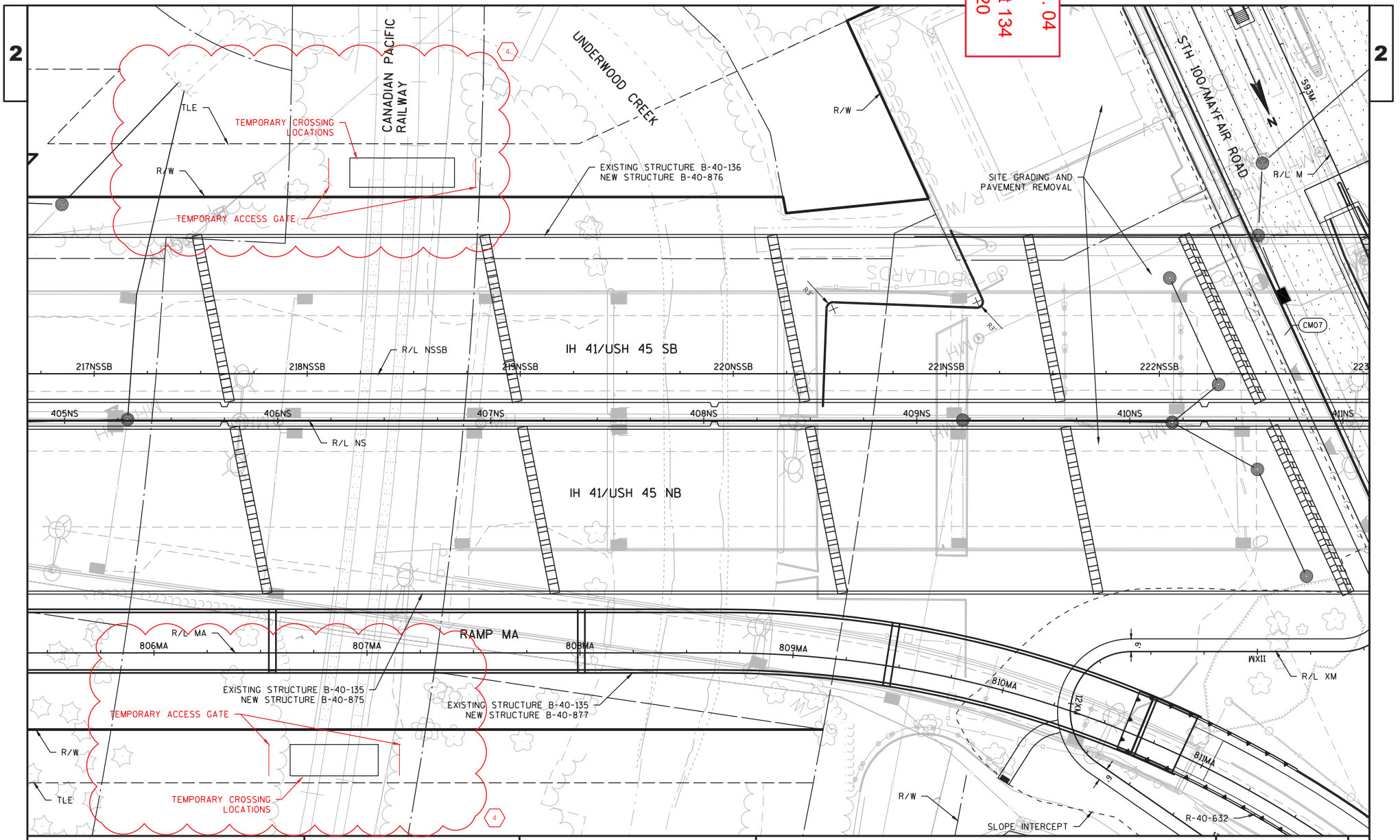
MINIMUM CONSTRUCTION CLEARANCE ENVELOPE
(NORMAL TO RAILROAD)
CANADIAN PACIFIC RAILWAY

Addendum No. 04
ID 1060-33-84
Added Sheet 66A
October 6, 2020

PROJECT NO: 1060-33-84	HWY: USH 45	COUNTY: MILWAUKEE	CONSTRUCTON DETAIL - TEMPORARY RAILROAD CROSSING CPRR	SHEET 66A	E

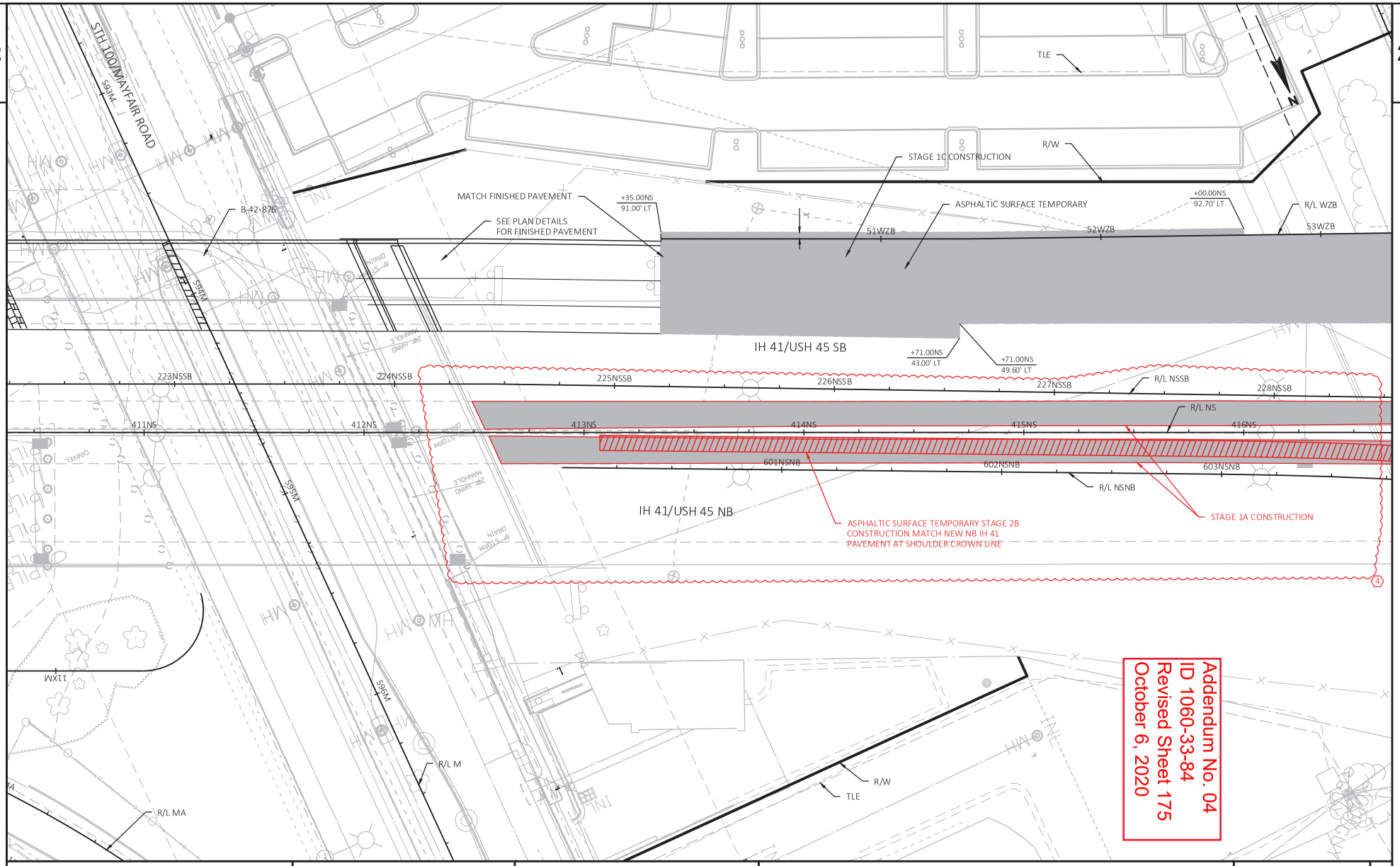
FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\CPRR SUBMITTAL\080101_CS.DWG
LAYOUT NAME - Plan 1 IN 100 FT
PLOT DATE : 10/5/2020 11:33 AM
PLOT BY : MANYEN, WAYNE
PLOT NAME :
PLOT SCALE : 1 IN:10 FT

Addendum No. 04
ID 1060-33-84
Revised Sheet 134
October 6, 2020



PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	PLAN DETAILS	SHEET 134	E

FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\021201_PD.DWG
LAYOUT NAME - 021201_PD - 05_PD
PLOT DATE : 10/5/2020 1:23 PM PLOT BY : MANYEN, WAYNE PLOT NAME : PLOT SCALE : 1 IN:40 FT
WISDOT/CADDS SHEET 42



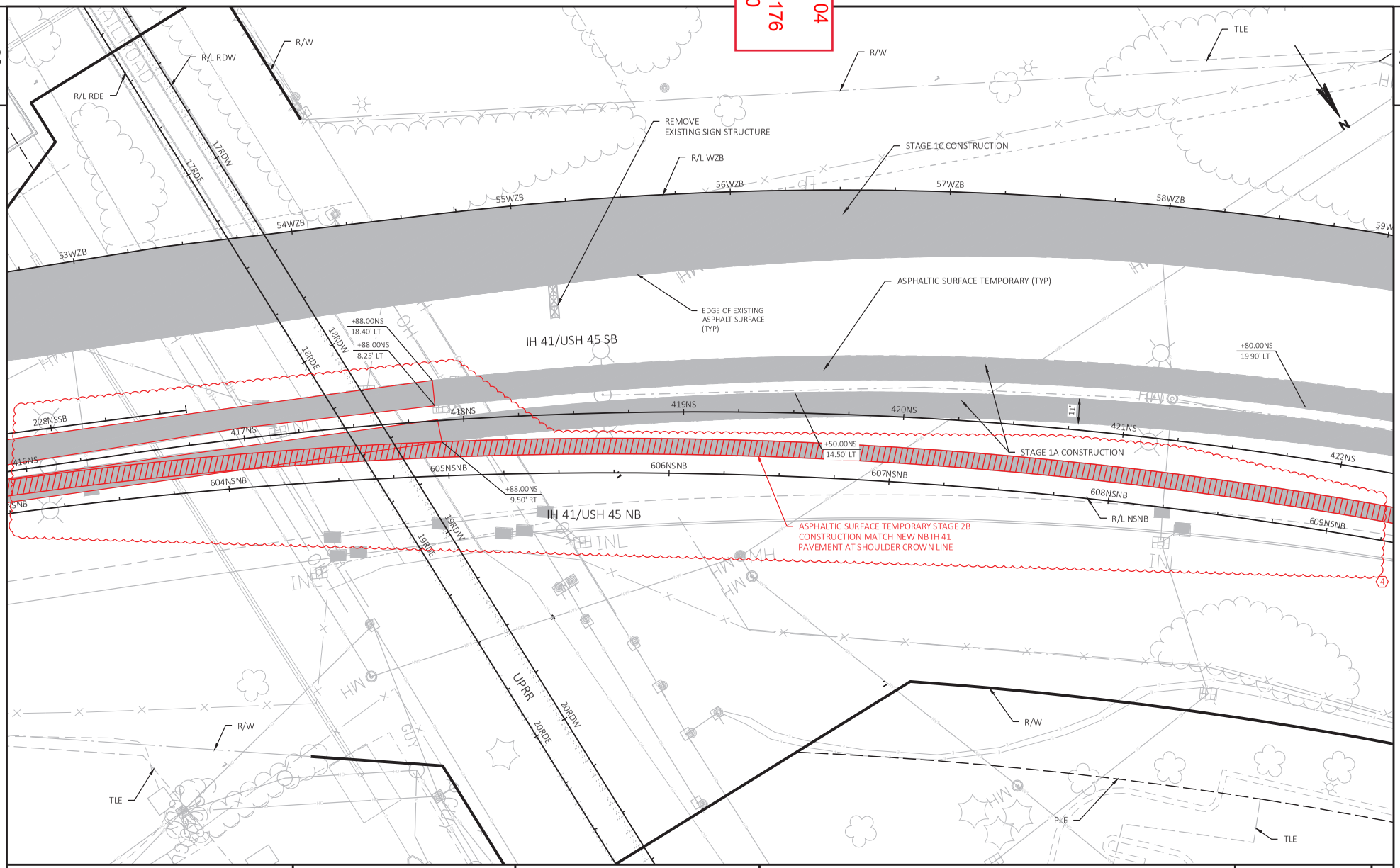
PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	PLAN DETAILS - TEMPORARY	SHEET 175	E

FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\F45_TRAFFIC_CONTROL\021200_PD.DWG
LAYOUT NAME - 021200_PD - 06

PLOT DATE : 10/4/2020 6:54 PM PLOT BY : SCHARLAU, DAVID A PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

Addendum No. 04
ID 1060-33-84
Revised Sheet 176
October 6, 2020



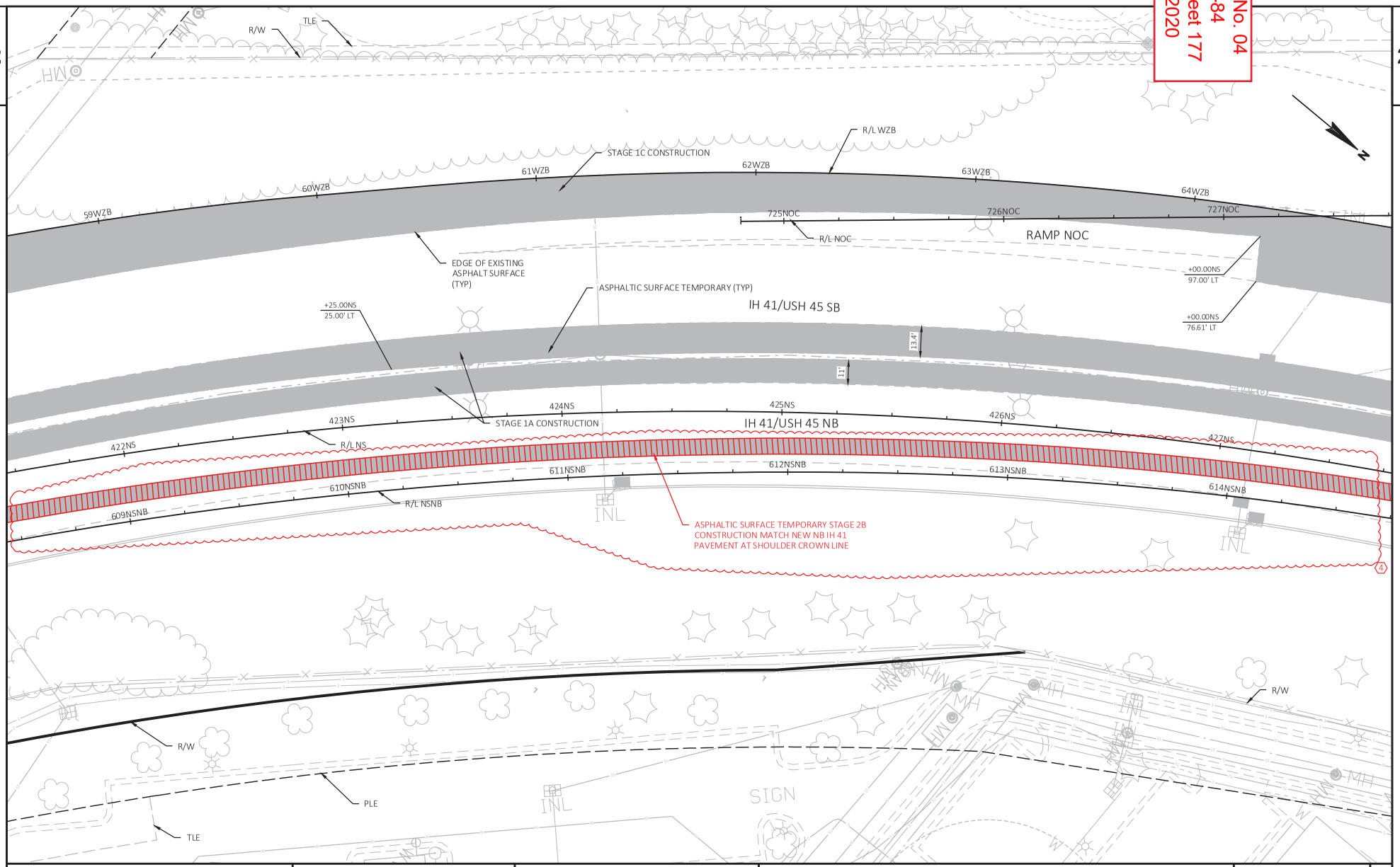
PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	PLAN DETAILS - TEMPORARY	SHEET 176	E

FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\F45_TRAFFIC_CONTROL\021200_PD.DWG
LAYOUT NAME - 021200_PD - 07

PLOT DATE : 10/4/2020 6:54 PM PLOT BY : SCHARLAU, DAVID A PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

Addendum No. 04
ID 1060-33-84
Revised Sheet 177
October 6, 2020



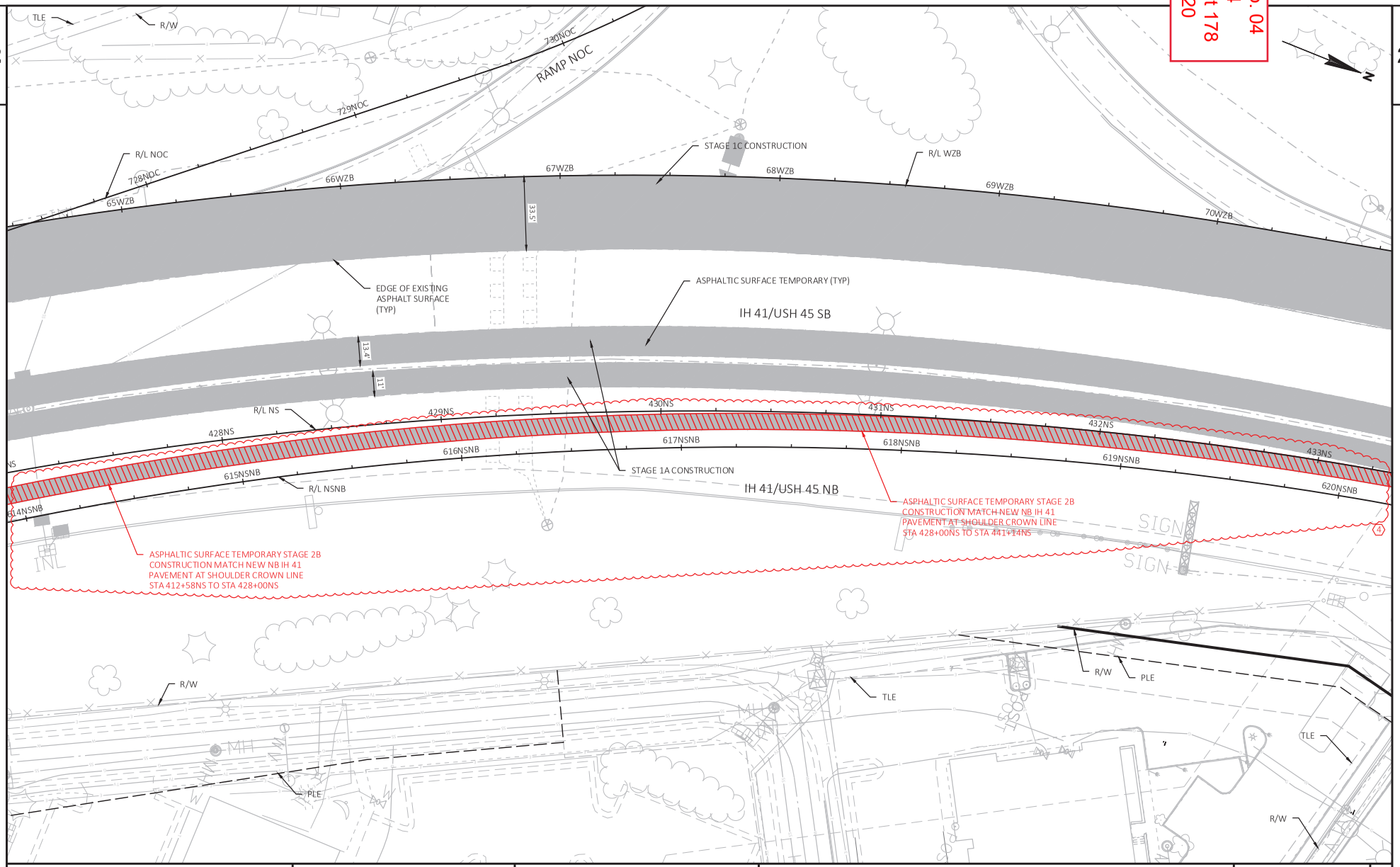
PROJECT NO:1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	PLAN DETAILS - TEMPORARY	SHEET 177	E

FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\F45_TRAFFIC_CONTROL\021200_PD.DWG
LAYOUT NAME - 021200_PD - 08

PLOT DATE : 10/4/2020 6:55 PM PLOT BY : SCHARLAU, DAVID A PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

Addendum No. 04
ID 1060-33-84
Revised Sheet 178
October 6, 2020

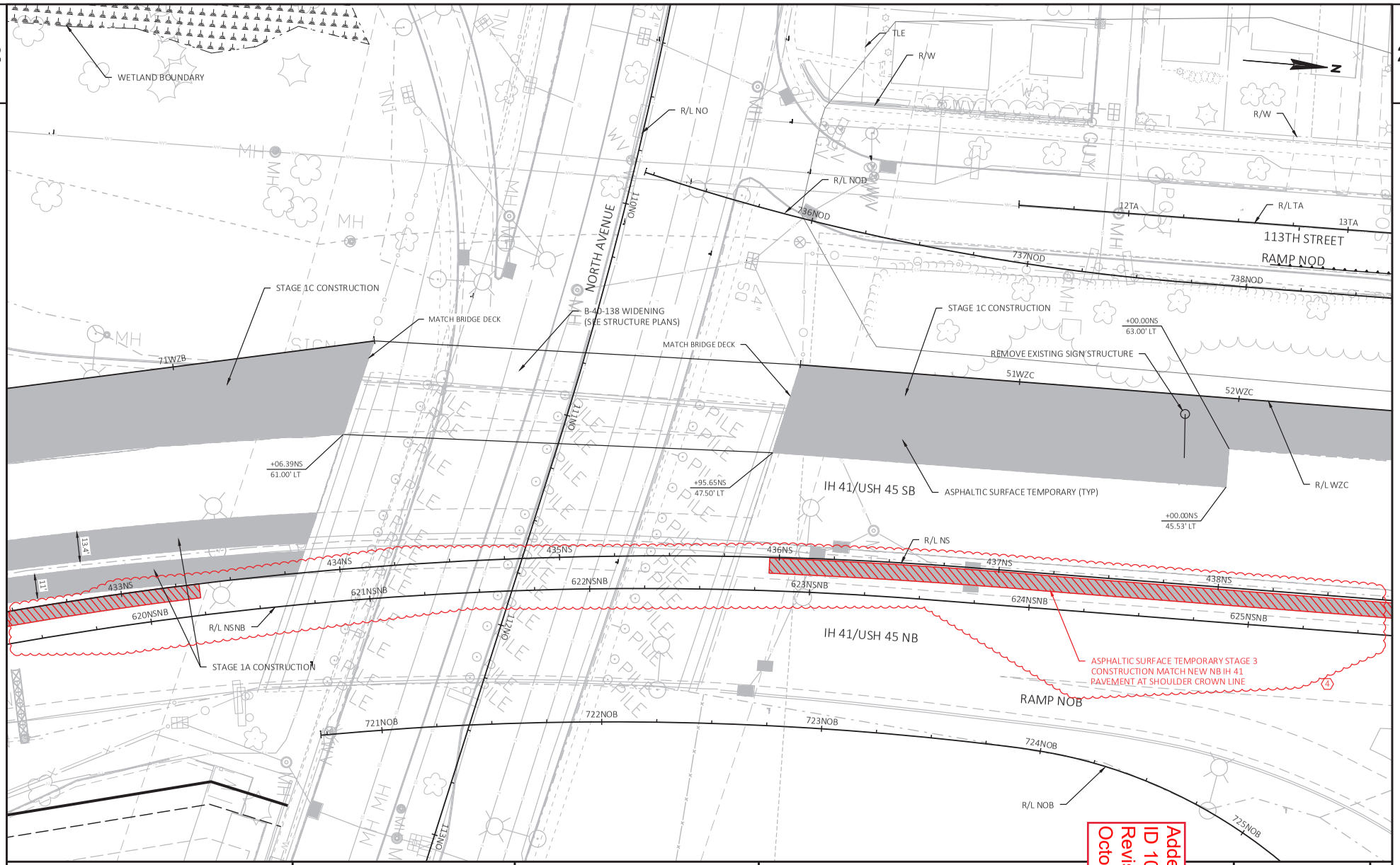


PROJECT NO:1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	PLAN DETAILS - TEMPORARY	SHEET 178	E

FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\F45_TRAFFIC_CONTROL\021200_PD.DWG
LAYOUT NAME - 021200_PD - 09

PLOT DATE : 10/4/2020 6:56 PM PLOT BY : SCHARLAU, DAVID A PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42



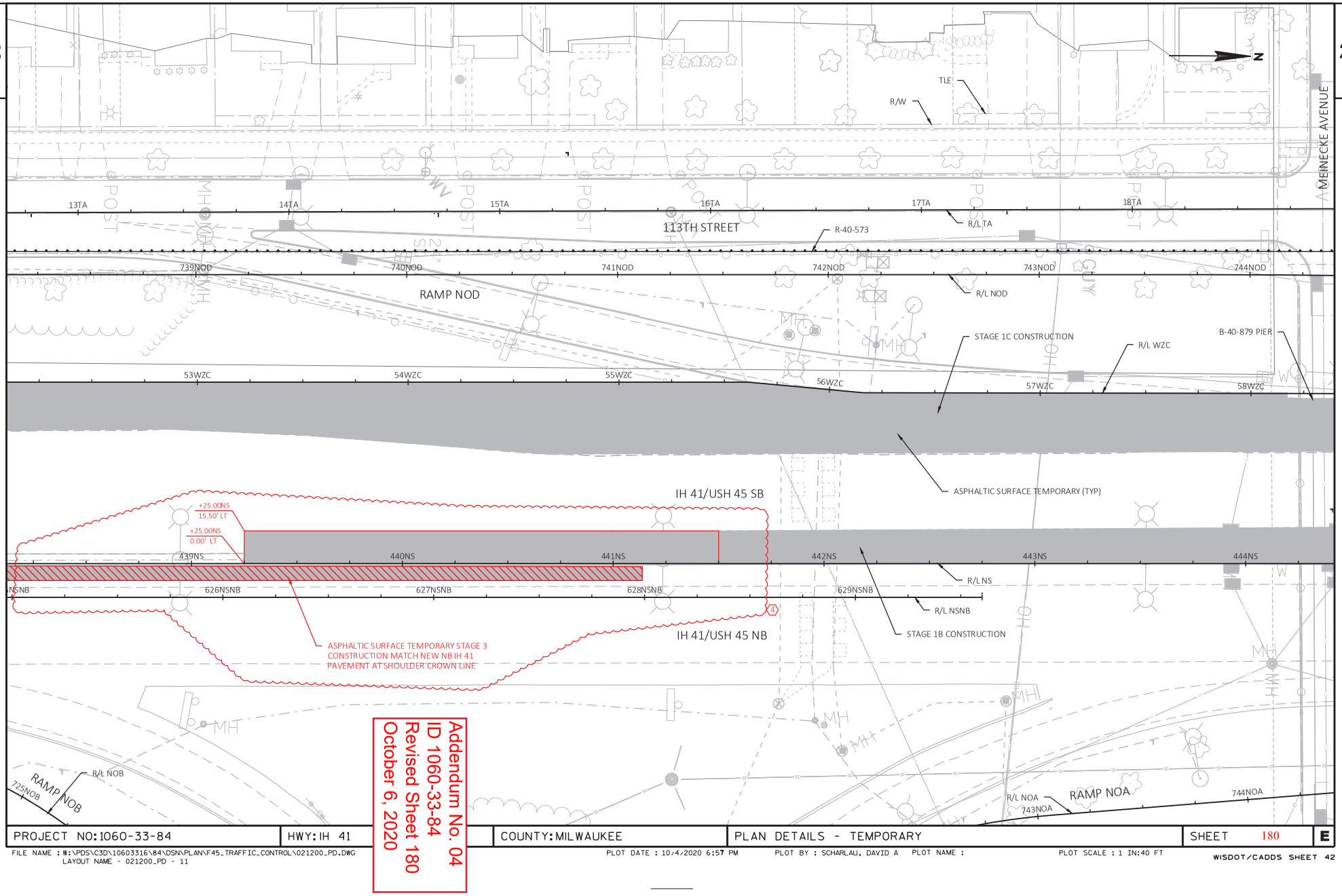
PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	PLAN DETAILS - TEMPORARY	SHEET 179	E

FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\F45_TRAFFIC_CONTROL\021200_PD.DWG
LAYOUT NAME - 021200_PD - 10

PLOT DATE : 10/4/2020 6:56 PM PLOT BY : SCHARLAU, DAVID A PLOT NAME : :40 FT

WISDOT/CADDS SHEET 42

Addendum No. 04
ID 1060-33-84
Revised Sheet 179
October 6, 2020



Addendum No. 04
ID 1060-33-84
Revised Sheet 180
October 6, 2020

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	PLAN DETAILS - TEMPORARY	SHEET 180	E

FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\F45_TRAFFIC_CONTROL\021200_PD.DWG
LAYOUT NAME - 021200_PD - 11

PLOT DATE : 10/4/2020 6:57 PM PLOT BY : SCHARLAU, DAVID A PLOT NAME : PLOT SCALE : 1 IN:40 FT

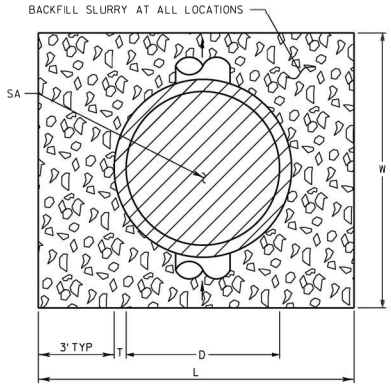
WISDOT/CADDS SHEET 42

BACKFILL SLURRY STRUCTURES (FOR INFORMATION ONLY)

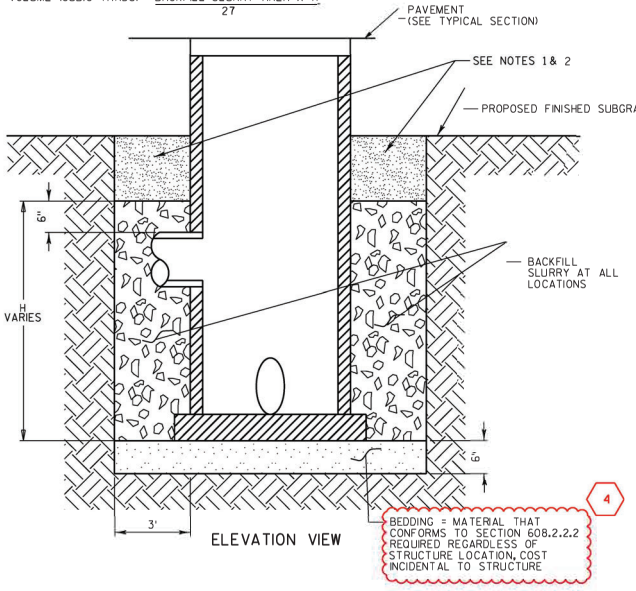
DESCRIPTION	RECTANGULAR STR WIDTH RW FT	WALL THICKNESS T INCH	SLAB THICKNESS ST INCH	STRUCTURE EXCAVATION LENGTH L FT	STRUCTURE EXCAVATION WIDTH W FT	STRUCTURE EXCAVATION AREA SF	STRUCTURE AREA SA SF	BACKFILL SLURRY AREA SF
INLETS 2x2.5-FT	2.5	5	5	8.83	9.33	82.44	9.44	73.00
INLETS 2x3-FT	3	5	5	8.83	9.83	86.86	10.86	76.00
INLETS MEDIAN 1 GRATE	2.5	8	8	9.83	9.83	96.69	14.69	82.00
INLETS MEDIAN 2 GRATE	5.33	8	8	9.83	12.66	124.52	25.54	98.98
INLETS 4-FT DIAMETER	---	5	6	10.83	10.83	117.36	18.34	99.02
MANHOLES 4-FT DIAMETER	---	5	6	10.83	10.83	117.36	18.34	99.02
MANHOLES 5-FT DIAMETER	---	6	8	12.00	12.00	144.00	28.26	115.74
MANHOLES 6-FT DIAMETER	---	7	8	13.17	13.17	173.36	40.32	133.04
MANHOLES 7-FT DIAMETER	---	8	8	14.33	14.33	205.44	54.51	150.93
MANHOLES 8-FT DIAMETER	---	9	8	15.50	15.50	240.25	70.85	169.40
MANHOLES 9-FT SPECIAL	---	10	12	16.67	16.67	277.78	89.32	188.46
MANHOLES 10-FT SPECIAL	---	11	12	17.83	17.83	318.03	109.92	208.11
MANHOLES 12-FT SPECIAL	---	12	12	20.00	20.00	400.00	153.86	246.14

H = UP TO 6" ABOVE THE TOP OF THE HIGHEST PIPE IN THE STRUCTURE

BACKFILL SLURRY VOLUME (CUBIC YARDS) = $\frac{\text{BACKFILL SLURRY AREA X H}}{27}$



PLAN VIEW



ELEVATION VIEW

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 207 EMBANKMENT SPECIFICATIONS.

(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.

(5) AT DIRECTION OF ENGINEER, BACKFILL SLURRY CAN BE ELIMINATED IN HIGH EMBANKMENT AREAS.

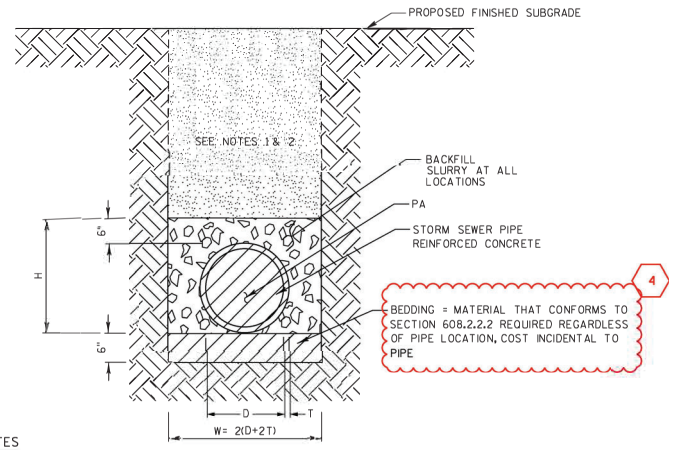
BACKFILL SLURRY DETAIL - STORM SEWER STRUCTURES

NOT REQUIRED FOR TEMPORARY INSTALLATION 4

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
21	2.75	4.42	2.71	11.96	3.83	8.13
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
72	7.75	14.58	7.79	113.63	41.76	71.87
78	8.25	15.75	8.38	131.91	48.71	83.20
84	8.00	16.67	8.83	147.22	54.54	92.68
90	8.50	17.83	9.42	167.93	62.44	105.49
96	9.00	19.00	10.00	190.00	70.88	119.12
19x30	3.25	6.08	3.54	21.55	5.08	16.47
48x76	6.50	14.83	7.92	117.43	29.61	87.82

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 207 EMBANKMENT SPECIFICATIONS.

(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.

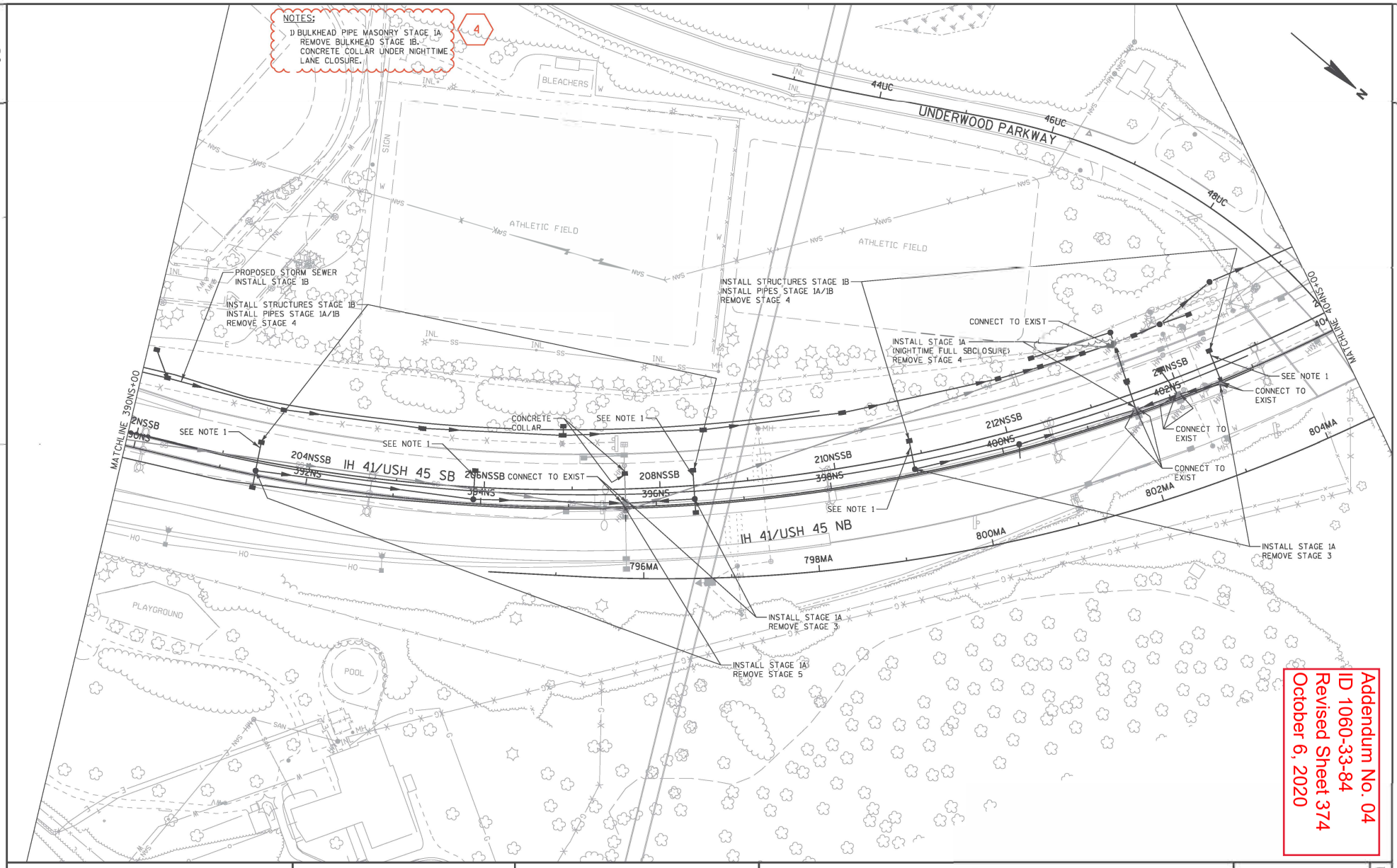
(4) WHEN TEMPORARY SUBGRADE IS HIGHER THAN PROPOSED FINISHED SUBGRADE, PROVIDE GRANULAR BACKFILL AT ALL LOCATIONS. COST FOR GRANULAR BACKFILL IS CONSIDERED INCIDENTAL TO CONSTRUCTION.

(5) AT DIRECTION OF ENGINEER, BACKFILL SLURRY CAN BE ELIMINATED IN HIGH EMBANKMENT AREAS.

BACKFILL SLURRY DETAIL - STORM SEWER TRENCH

NOT REQUIRED FOR TEMPORARY INSTALLATION 4

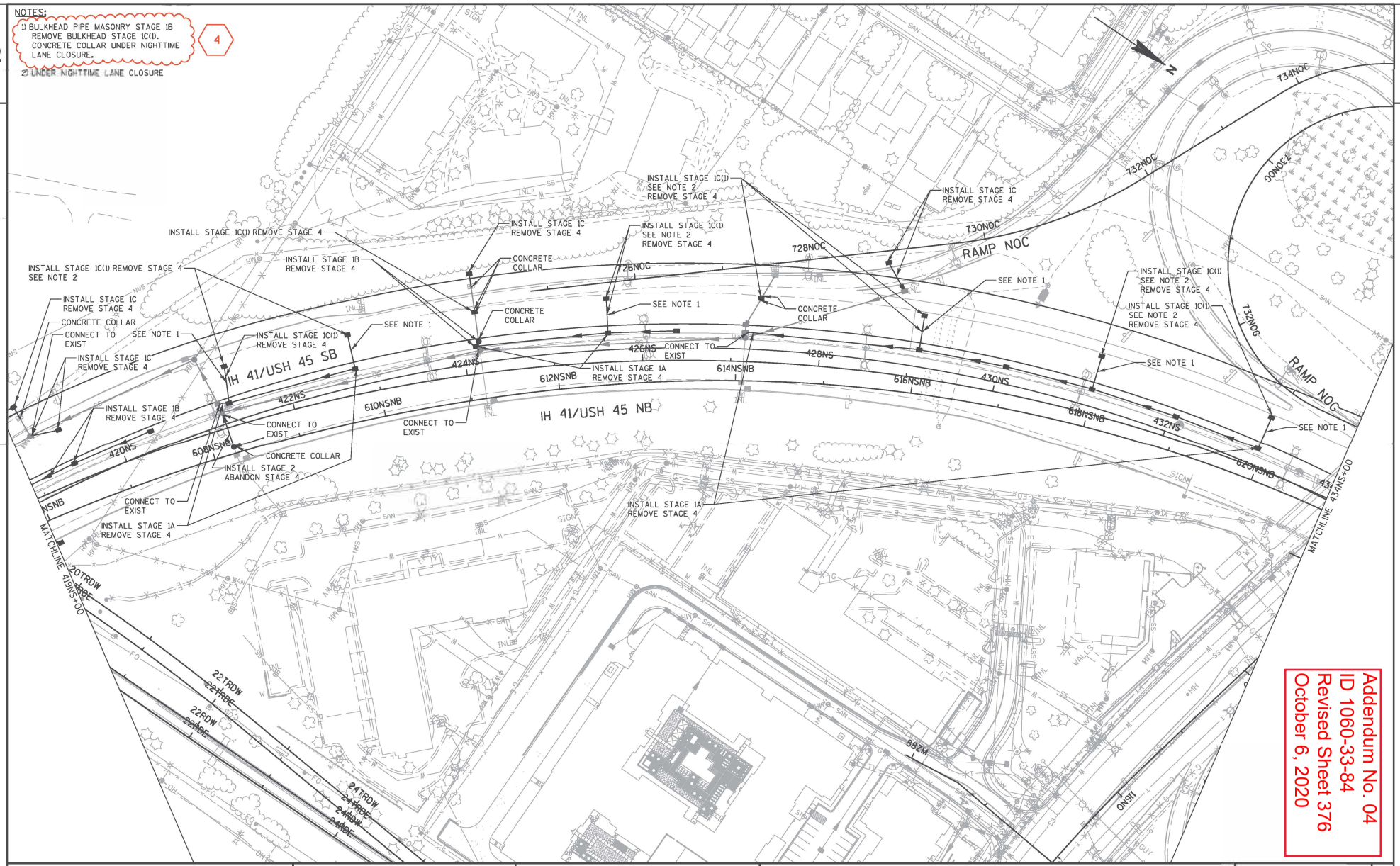
Addendum No. 04
ID 1060-33-84
Revised Sheet 351
October 6, 2020



PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	TEMPORARY STORM SEWER STAGING IH 41/USH 45 & RAMPS	SHEET 374	E

FILE NAME : S:\DOT\DOT_SE\120293-Zoo Interchange\DRAINAGE\ZOO_IC_DRAINAGE\ZOO_DESIGN_FILES\North_North_leg\10603384_ZN\Roads\cds\022532_SS.dgn PLOT DATE : 10/2/2020 PLOT BY : wwolok PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 42



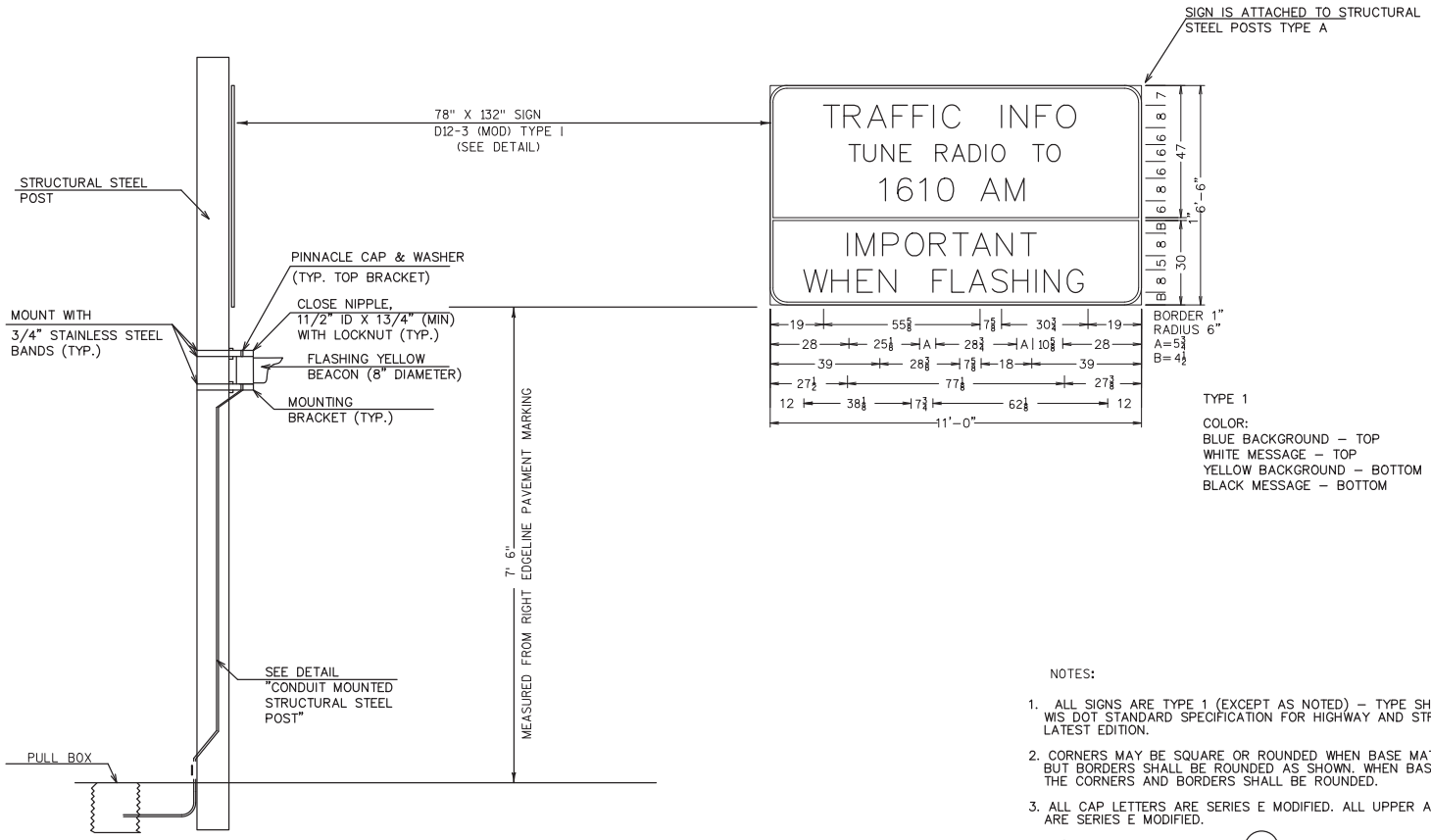
Addendum No. 04
ID 1060-33-84
Revised Sheet 376
October 6, 2020

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	TEMPORARY STORM SEWER STAGING IH 41/USH 45 & RAMPS	SHEET 376	E

FILE NAME : S:\DOT\DOT_SE\120293-Zoo Interchange\DRAINAGE\ZOO_IC_DRAINAGE\ZOO_DESIGN_FILES\North_North_leg\10603384_ZN\Roads\cds\022534_SS.dgn PLOT DATE : 10/2/2020 PLOT BY : wwolak PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 42

2

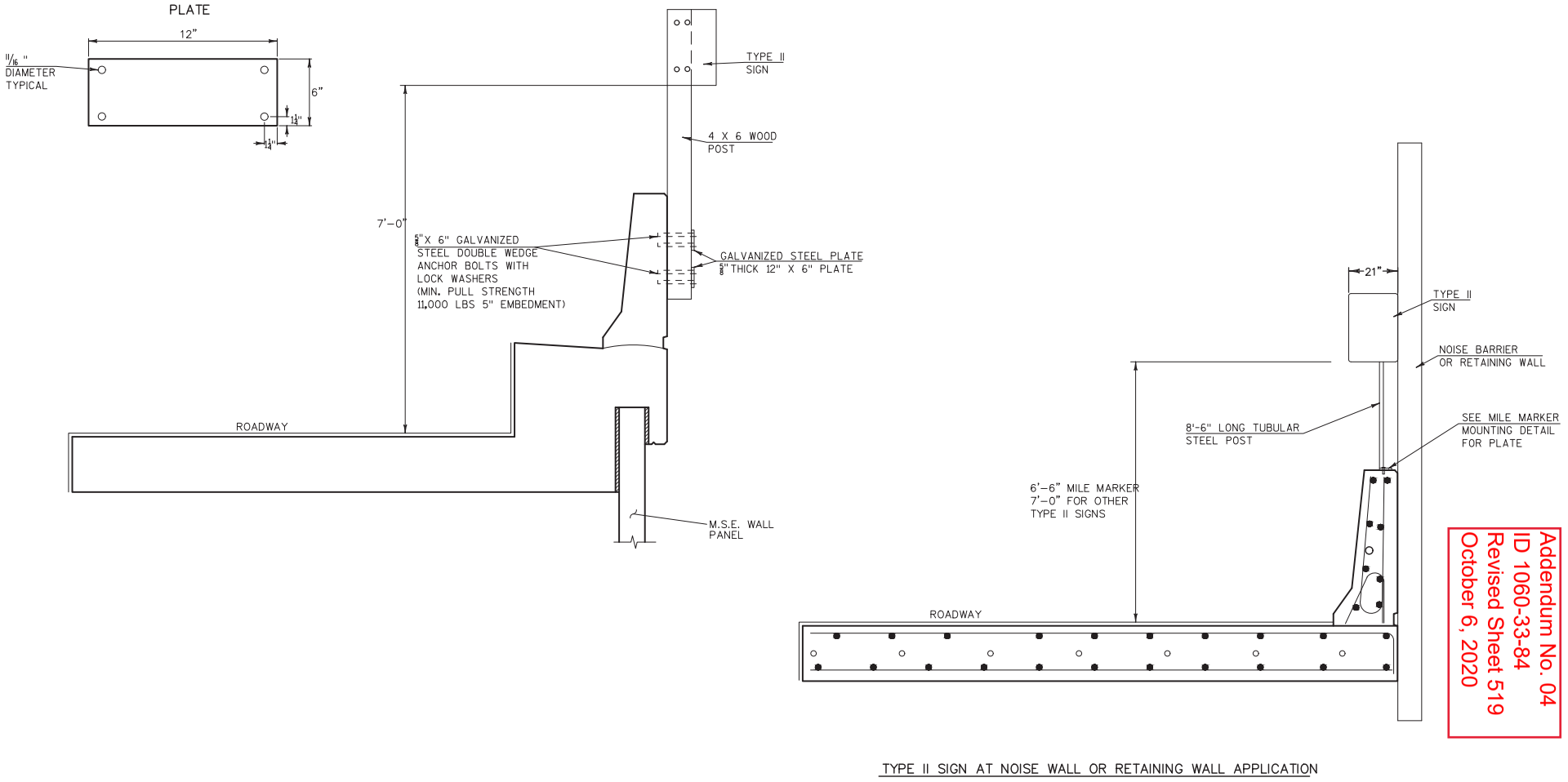


TYPICAL DETAIL
HARS FLASHER ASSEMBLY
(NOT TO SCALE)

NOTES:

1. ALL SIGNS ARE TYPE 1 (EXCEPT AS NOTED) – TYPE SH REFLECTIVE–REFERENCE WIS DOT STANDARD SPECIFICATION FOR HIGHWAY AND STRUCTURE CONSTRUCTION" LATEST EDITION.
2. CORNERS MAY BE SQUARE OR ROUNDED WHEN BASE MATERIAL IS PLYWOOD BUT BORDERS SHALL BE ROUNDED AS SHOWN. WHEN BASE MATERIAL IS METAL THE CORNERS AND BORDERS SHALL BE ROUNDED.
3. ALL CAP LETTERS ARE SERIES E MODIFIED. ALL UPPER AND LOWER CASE LETTERS ARE SERIES E MODIFIED.
4. SIGN NUMBERS SHOWN BY: ◯
5. DO NOT SCALE.

Addendum No. 04
ID 1060-33-84
Revised Sheet 517
October 6, 2020

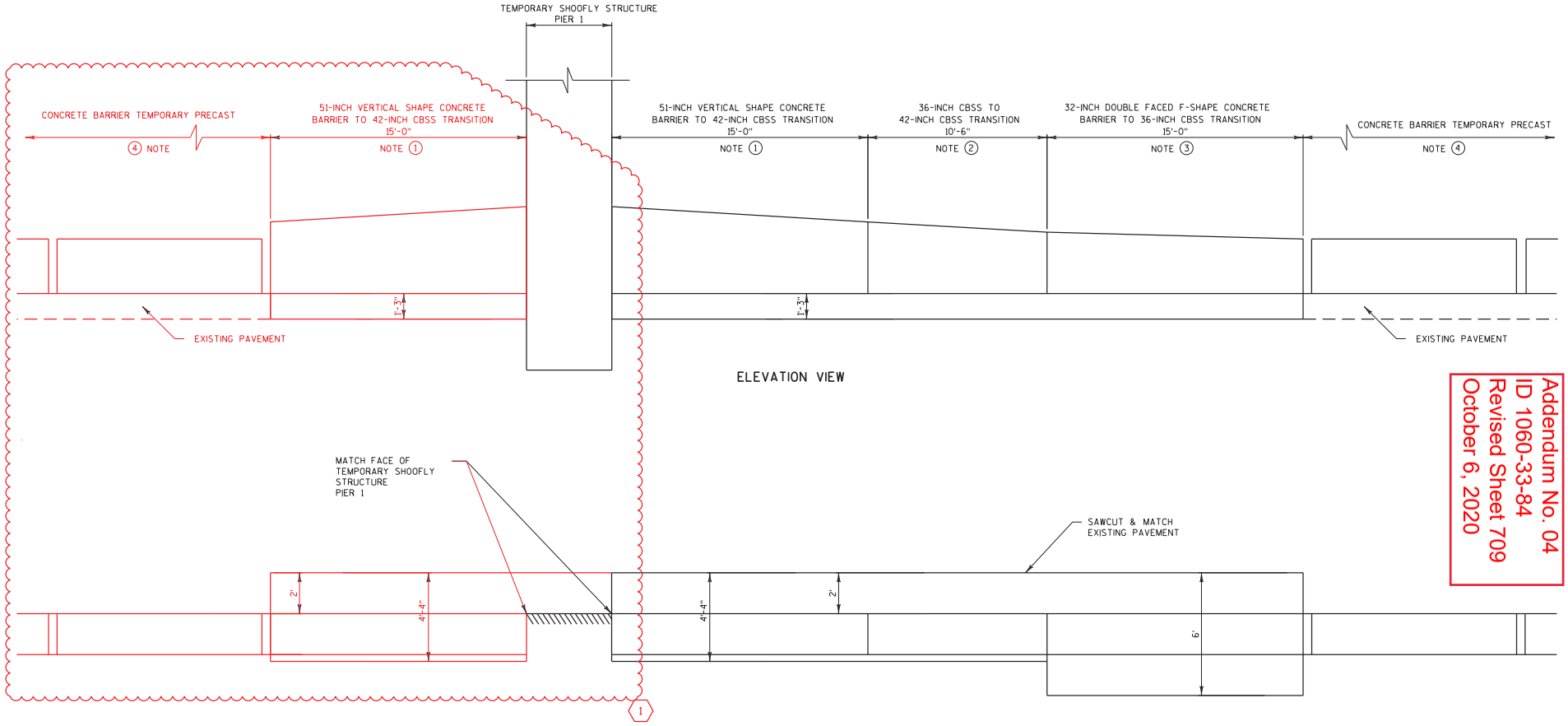


TYPE II SIGN AT NOISE WALL OR RETAINING WALL APPLICATION

Addendum No. 04
ID 1060-33-84
Revised Sheet 519
October 6, 2020

DETAIL 2 OF 12

PROJECT NO:1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	SIGN SUPPORTS SPECIAL MOUNTING	SHEET 519	E



Addendum No. 04
ID 1060-33-84
Revised Sheet 709
October 6, 2020

PIER BARRIER TRANSITION DETAIL

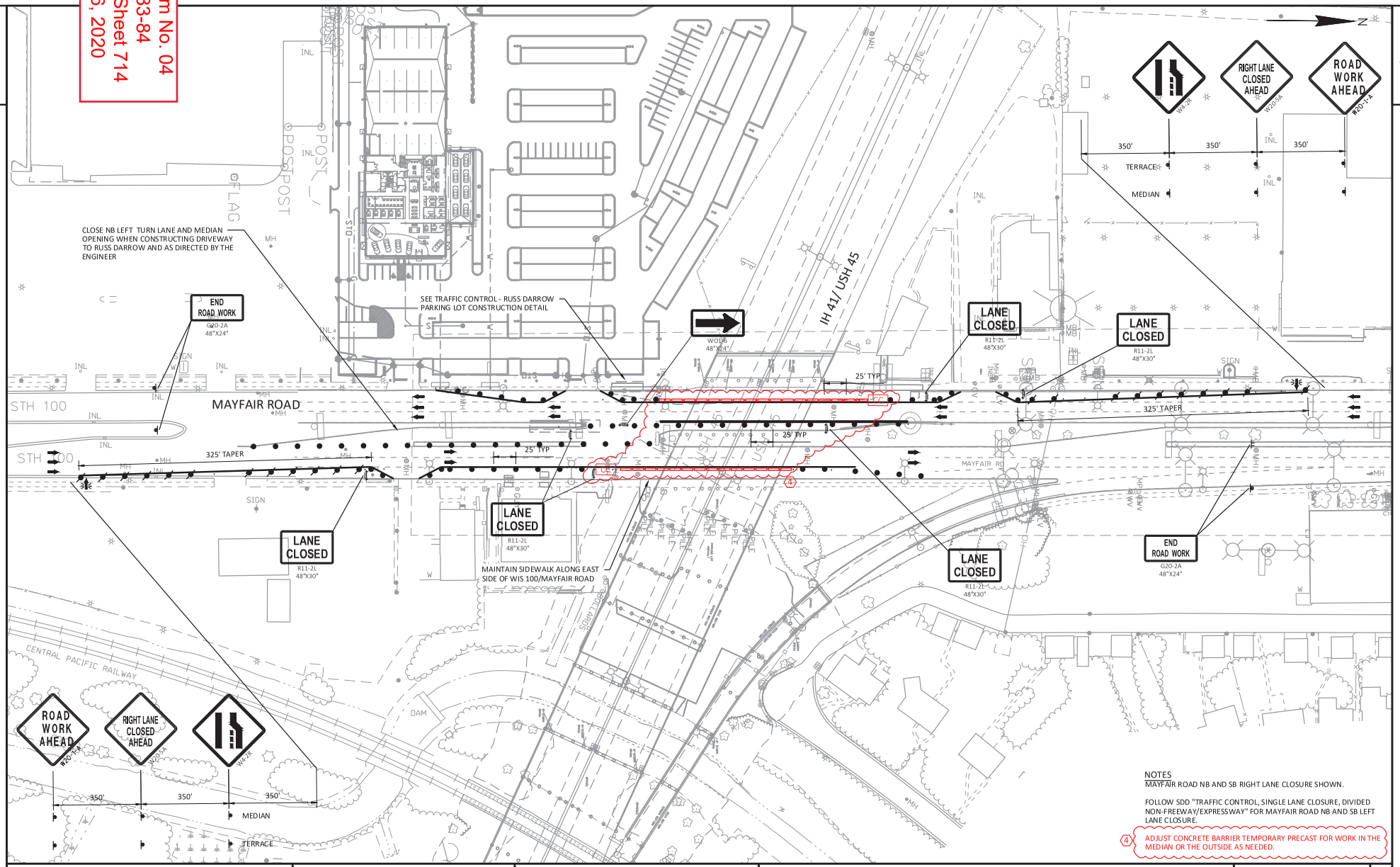
NOTES

1. SEE SDD "51-INCH VERTICAL SHAPE CONCRETE BARRIER TO 42-INCH SINGLE SLOPE CONCRETE BARRIER TRANSITION" FOR ADDITIONAL INFORMATION.
2. SEE SDD "36" SINGLE SLOPE CONCRETE BARRIER TO 42" SINGLE SLOPE CONCRETE BARRIER HEIGHT TRANSITION" FOR ADDITIONAL INFORMATION.
3. SEE SDD "32" DOUBLE FACED F SHAPE CONCRETE BARRIER TO 36" SINGLE SLOPE CONCRETE BARRIER TRANSITION LAYOUT" FOR ADDITIONAL INFORMATION.
4. TRANSITION RELATIVE STIFFNESS AND DEFLECTION OF TEMPORARY BARRIER SYSTEM AT MATCH POINT WITH TIED-DOWN SYSTEM. SEE SDD "CONCRETE BARRIER TEMPORARY PRECAST 12'-6" - FREE STANDING TRANSITION TO TIED DOWN SYSTEM" FOR ADDITIONAL INFORMATION.

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	TRAFFIC CONTROL - CONSTRUCTION DETAIL	SHEET 709	E

FILE NAME : W:\PDS\C3D\10603316\84\Dsn\Plan\F45_Traffic_Control\025101_tc.dgn PLOT DATE : 04-OCT-2020 19:52 PLOT BY : MSCD1S PLOT NAME : 025101_tc12 PLOT SCALE : 100:1
WISDOT/CADDS SHEET 42

Addendum No. 04
ID 1060-33-84
Revised Sheet 714
October 6, 2020



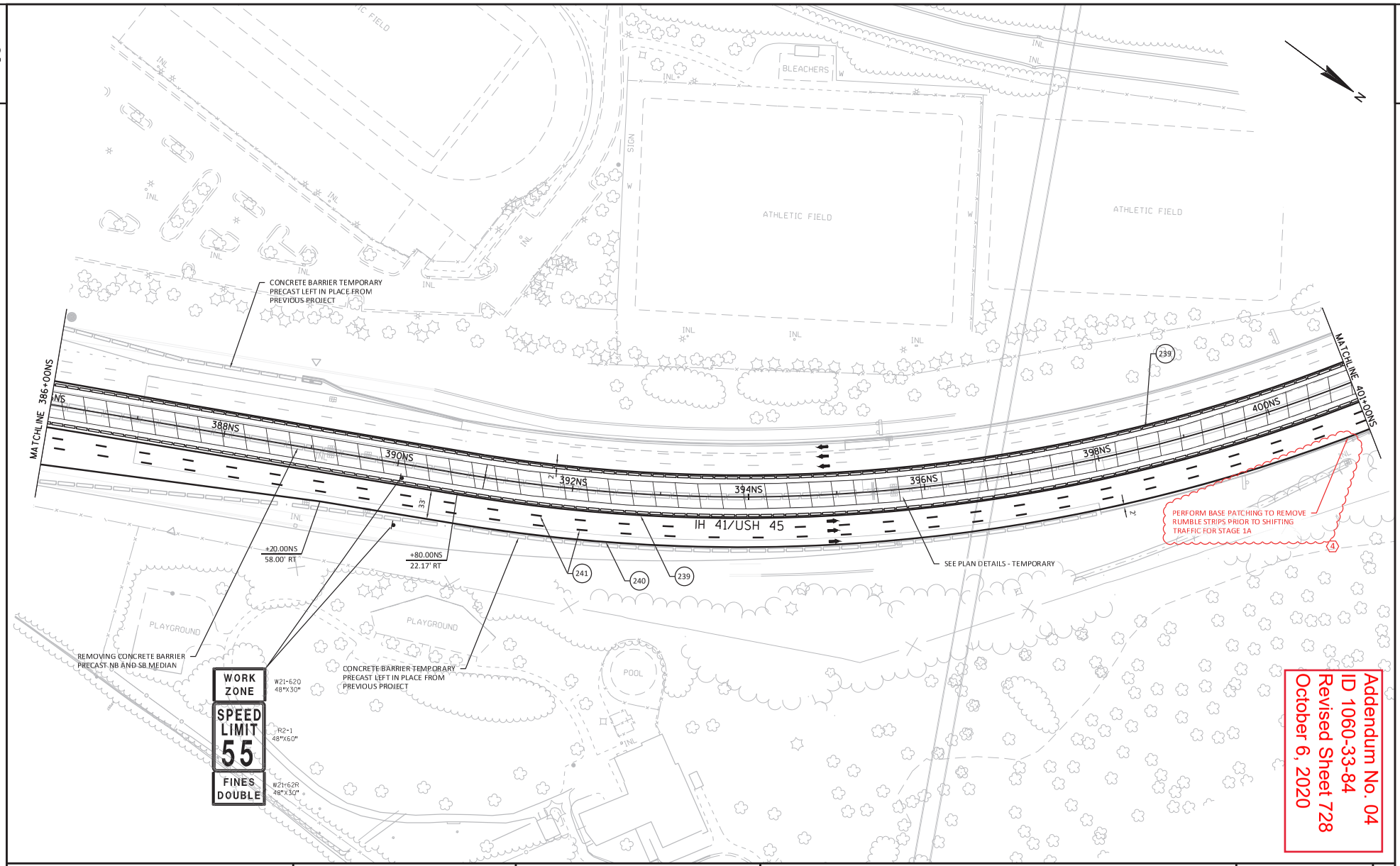
NOTES
MAYFAIR ROAD NB AND SB RIGHT LANE CLOSURE SHOWN.

FOLLOW SDD "TRAFFIC CONTROL, SINGLE LANE CLOSURE, DIVIDED NON-FREEWAY/EXPRESSWAY" FOR MAYFAIR ROAD NB AND SB LEFT LANE CLOSURE.

4 ADJUST CONCRETE BARRIER TEMPORARY PRECAST FOR WORK IN THE MEDIAN OR THE OUTSIDE AS NEEDED.

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	TRAFFIC CONTROL - MAYFAIR ROAD LANE CLOSURES	SHEET 714	E

FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\F45_TRAFFIC_CONTROL\025305_TC.DWG
LAYOUT NAME - 02
PLOT DATE : 10/5/2020 12:50 PM
PLOT BY : SCHARLAU, DAVID A
PLOT NAME :
PLOT SCALE : 1 IN:100 FT
WISDOT/CADDS SHEET 42



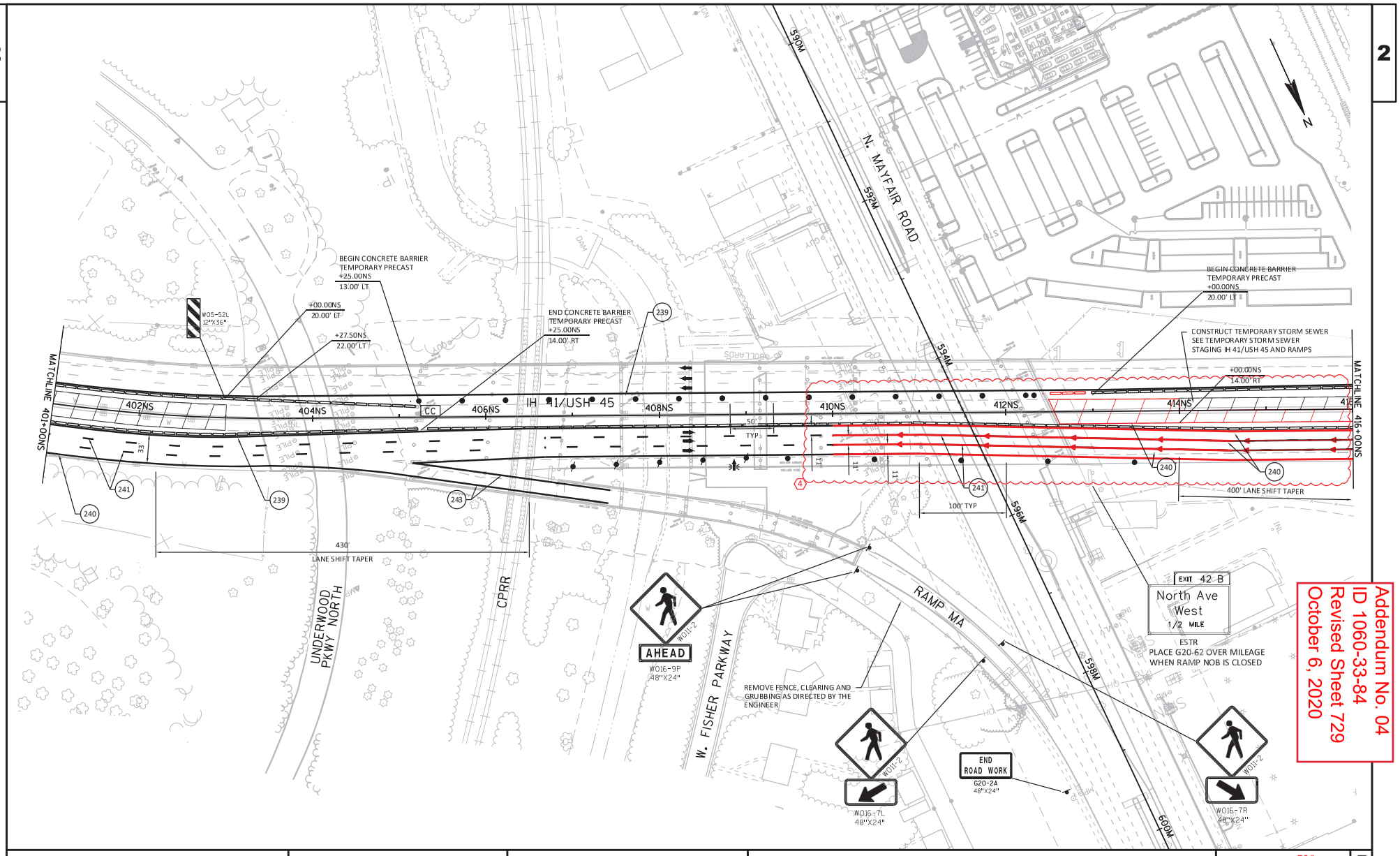
Addendum No. 04
ID 1060-33-84
Revised Sheet 728
October 6, 2020

PROJECT NO:1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	TRAFFIC CONTROL - IH 41/USH 45 STAGE 1A	SHEET 728	E

FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\F45_TRAFFIC_CONTROL\026102_S1A.DWG
LAYOUT NAME - 026102_S1A - 04

PLOT DATE : 10/3/2020 8:55 PM PLOT BY : SCHARLAU, DAVID A PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42



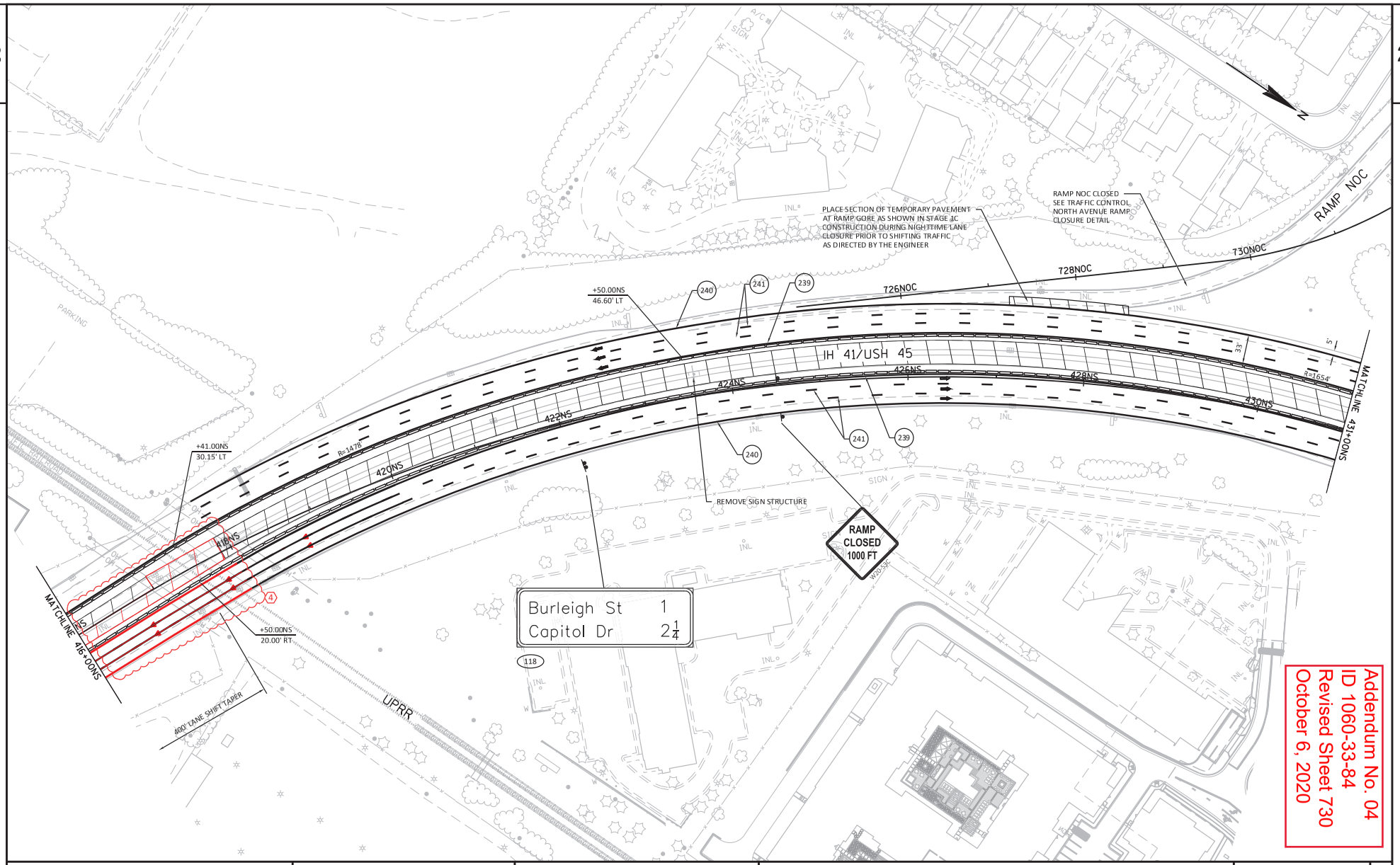
Addendum No. 04
ID 1060-33-84
Revised Sheet 729
October 6, 2020

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	TRAFFIC CONTROL - IH 41/USH 45 STAGE 1A	SHEET 729	E

FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\F45_TRAFFIC_CONTROL\026102_S1A.DWG
LAYOUT NAME - 026102_S1A - 05

PLOT DATE : 10/5/2020 3:20 PM PLOT BY : SCHARLAU, DAVID A PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42



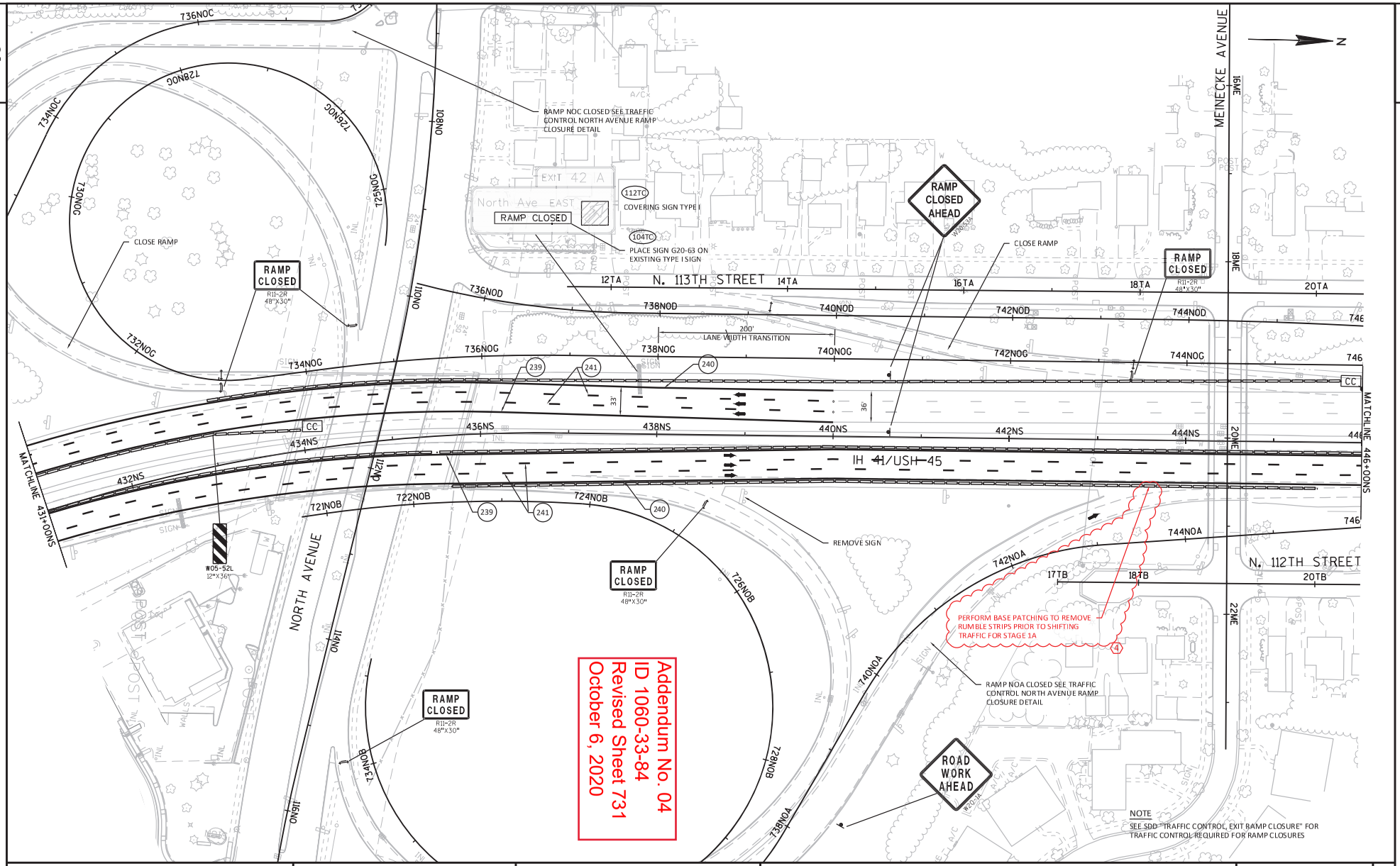
Addendum No. 04
ID 1060-33-84
Revised Sheet 730
October 6, 2020

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	TRAFFIC CONTROL - IH 41/USH 45 STAGE 1A	SHEET 730	E

FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\F45_TRAFFIC_CONTROL\026102_S1A.DWG
LAYOUT NAME - 026102_S1A - 06

PLOT DATE : 10/5/2020 3:20 PM PLOT BY : SCHARLAU, DAVID A PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42



PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	TRAFFIC CONTROL - IH 41/USH 45 STAGE 1A	SHEET 731	E

FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\F45_TRAFFIC_CONTROL\026102_S1A.DWG
LAYOUT NAME - 026102_S1A - 07

PLOT DATE : 10/3/2020 9:09 PM PLOT BY : SCHARLAU, DAVID A PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42

STAGE 1B - IH 41/USH 45

CONSTRUCTION:
- REMOVE OUTSIDE HALF OF SB MAYFAIR BRIDGE B-40-136 (PIN BARRIER TO EXISTING DECK)
- CONSTRUCT IH 41/USH 45 MEDIAN IMPROVEMENTS AT MEINECKE AVENUE
- TEMPORARY PAVEMENT WIDENING OF SB IH 41/USH 45 FROM SWAN BLVD TO MAYFAIR BRIDGE AND CENTER STREET TO BURLEIGH ROAD
- BEGIN CONSTRUCTION TEMPORARY SHOOFLY STRUCTURE TEMPORARY SOUTH ABUTMENT AND COMPLETE MEDIAN PIER
- BEGIN SHOOFLY TRACK CONSTRUCTION
- BEGIN CONSTRUCTION R-40-567
- REMOVE MEINECKE AVENUE BRIDGE OVER IH 41/USH 45 (B-40-259)
- CONSTRUCT MEINECKE AVENUE BRIDGE MEDIAN PIER (B-40-879)
- CONSTRUCT UTILITIES ALONG 113TH STREET, 112TH STREET, AND MEINECKE AVENUE (4)

TRAFFIC:
- IH 41/USH 45 NB THREE LANES ON EXISTING LANES AND OUTSIDE SHOULDER
- IH 41/USH 45 SB THREE LANES ON EXISTING LANES AND SHOULDERS (SHIFT AWAY FROM WORK ZONES)
- BRIDGE OVER MAYFAIR ROAD - IH 41/USH 45 SB THREE LANES ON EXISTING BRIDGE (MEDIAN HALF)

RAMPS:
- NORTH AVENUE RAMPS CLOSED
- BURLEIGH STREET - RAMP BUB AND RAMP BUC OPEN
- MAYFAIR ROAD - RAMP MA OPEN

MEINECKE AVENUE:
- CLOSED AT BRIDGE

112TH STREET:
- CLOSED AT MEINECKE

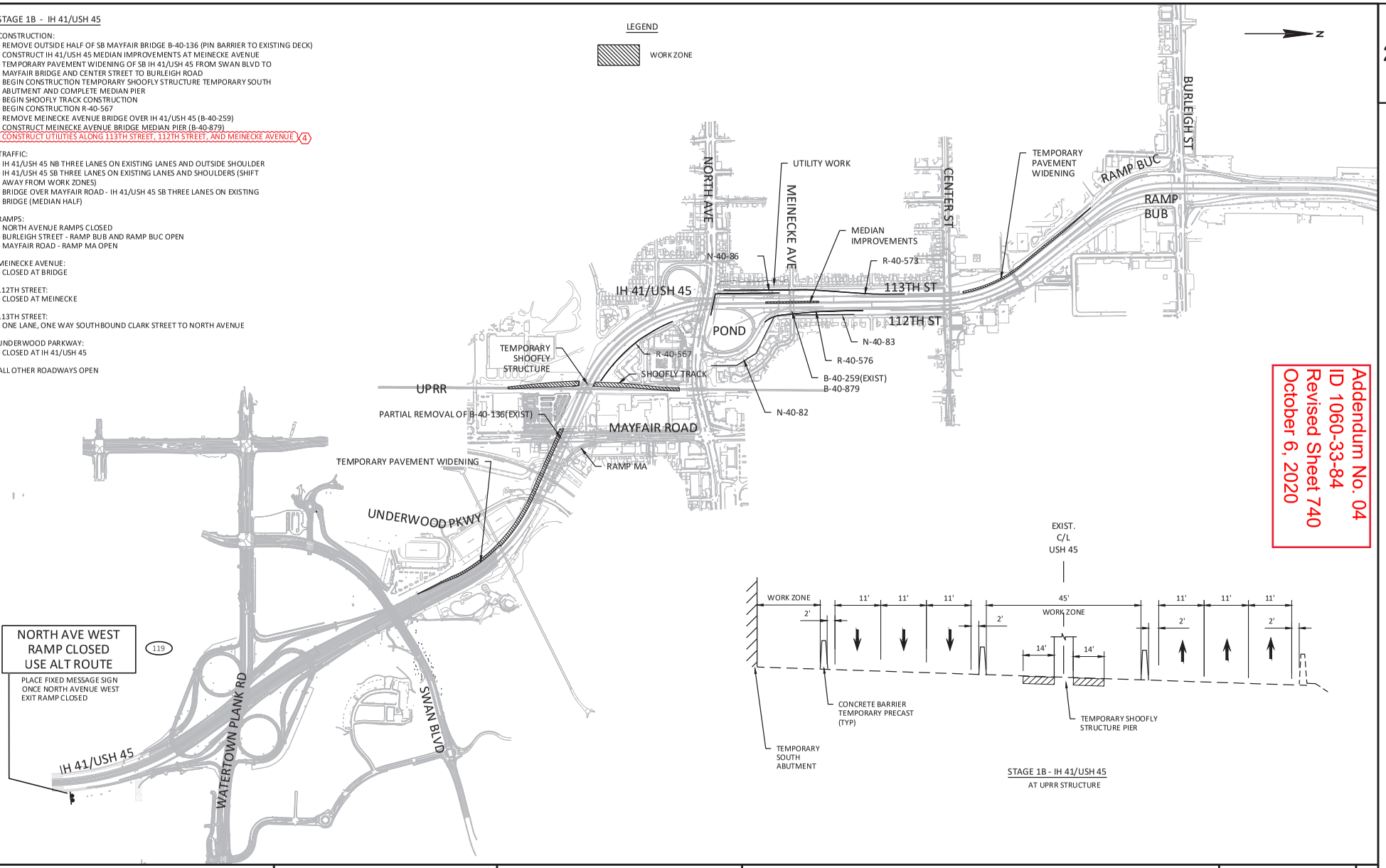
113TH STREET:
- ONE LANE, ONE WAY SOUTHBOUND CLARK STREET TO NORTH AVENUE

UNDERWOOD PARKWAY:
- CLOSED AT IH 41/USH 45

ALL OTHER ROADWAYS OPEN

LEGEND

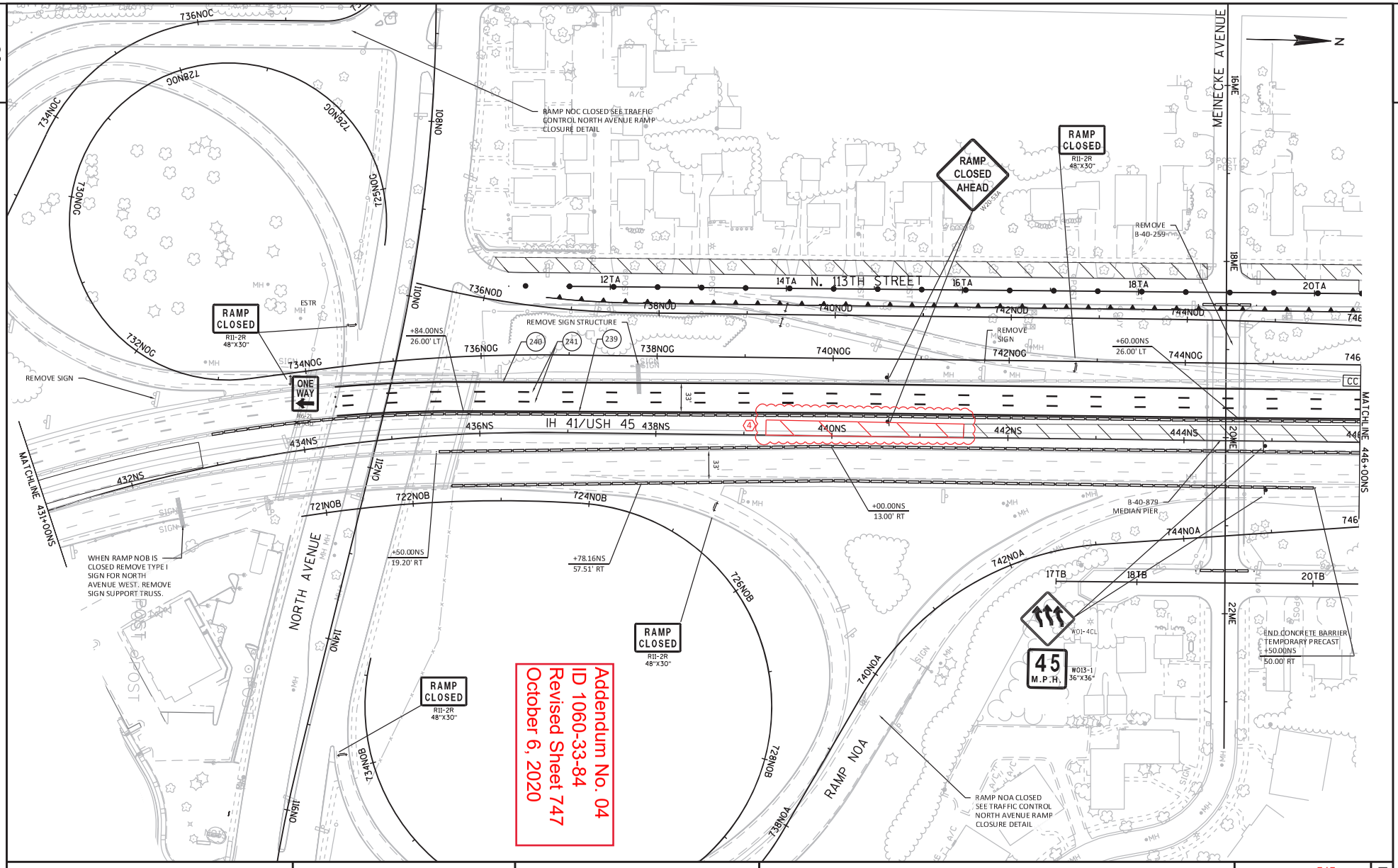
WORK ZONE



STAGE 1B - IH 41/USH 45
AT UPRR STRUCTURE

Addendum No. 04
ID 1060-33-84
Revised Sheet 740
October 6, 2020

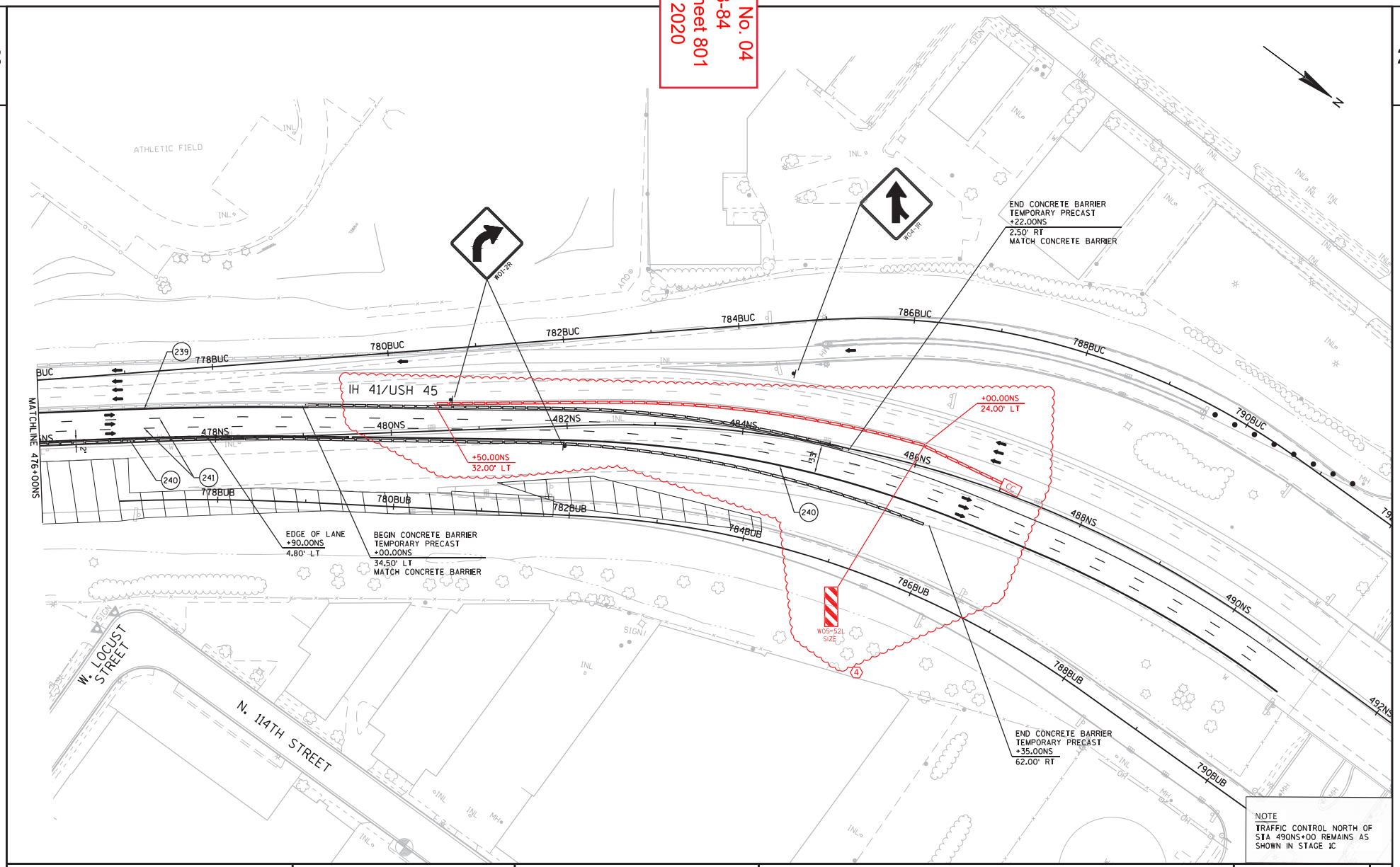
PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	TRAFFIC CONTROL - IH 41/USH 45 STAGE 1B OVERVIEW	SHEET 740	E



PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	TRAFFIC CONTROL - IH 41/USH 45 STAGE 1B	SHEET 747	E

FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\F45_TRAFFIC_CONTROL\026104_S1B.DWG
LAYOUT NAME - 026104_S1B - 07
PLOT DATE : 10/5/2020 12:14 PM PLOT BY : SCHARLAU, DAVID A PLOT NAME : PLOT SCALE : 1 IN:100 FT
WISDOT/CADDS SHEET 42

Addendum No. 04
ID 1060-33-84
Revised Sheet 801
October 6, 2020



NOTE
TRAFFIC CONTROL NORTH OF STA 490NS+00 REMAINS AS SHOWN IN STAGE 1C

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	TRAFFIC CONTROL - IH 41/USH 45 STAGE 2A	SHEET 801	E

FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\F45_TRAFFIC_CONTROL\026202_S2A.DWG
LAYOUT NAME - 026202_S2A - 10
PLOT DATE : 10/4/2020 8:16 PM PLOT BY : SCHARLAU, DAVID A PLOT NAME : PLOT SCALE : **********
WISDOT/CADDS SHEET 42

2

STAGE 2B - IH 41/USH 45

CONSTRUCTION:
- CONSTRUCT NB IH 41/USH 45 (EXCEPT NB MEDIAN SHOULDER STA 428+00 NS TO STA 477+00 NS)
- CONSTRUCT NB MAYFAIR BRIDGE (B-40-875) AND RAMP MA BRIDGE (B-40-877)
- COMPLETE UPRR BRIDGE (B-40-878), ACTIVATE TRACK, AND REMOVE TEMPORARY SHOOFLY STRUCTURE AND TRACK
- IH 41/USH 45 OVER NORTH AVENUE (B-40-794)
- CONSTRUCT NORTH AVENUE (SEE STAGING - NORTH AVENUE)
- CONSTRUCT WATER MAIN ALONG NORTH AVENUE
- INSTALL STORM SEWER STRUCTURE IN SB MAYFAIR ROAD

TRAFFIC:
- IH 41/USH 45 NB THREE LANES ON SB SIDE, SOUTH CROSSOVER NEAR WATERTOWN PLANK, NORTH CROSSOVER NEAR BURLEIGH STREET
- IH 41/USH 45 SB THREE LANES ON EXISTING SHOULDER AND TEMP PAVEMENT
- BRIDGE OVER MAYFAIR ROAD - IH 41/USH 45 NB THREE LANES ON EXISTING SB MAYFAIR BRIDGE (MEDIAN HALF), IH 41/USH 45 SB THREE LANES ON NEW SB BRIDGE (OUTSIDE HALF)

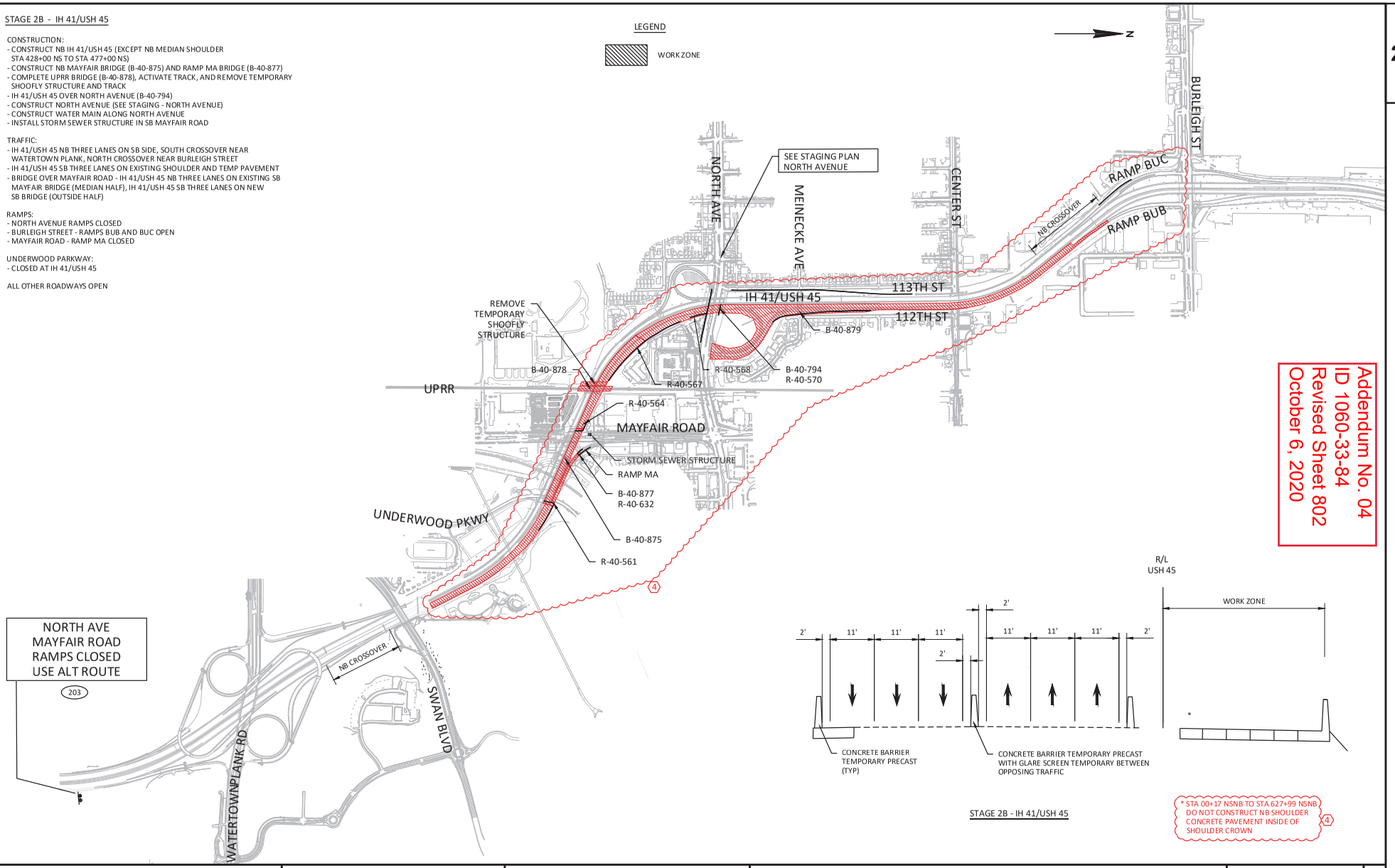
RAMPS:
- NORTH AVENUE RAMPS CLOSED
- BURLEIGH STREET - RAMPS BUB AND BUC OPEN
- MAYFAIR ROAD - RAMP MA CLOSED

UNDERWOOD PARKWAY:
- CLOSED AT IH 41/USH 45

ALL OTHER ROADWAYS OPEN

LEGEND

WORK ZONE



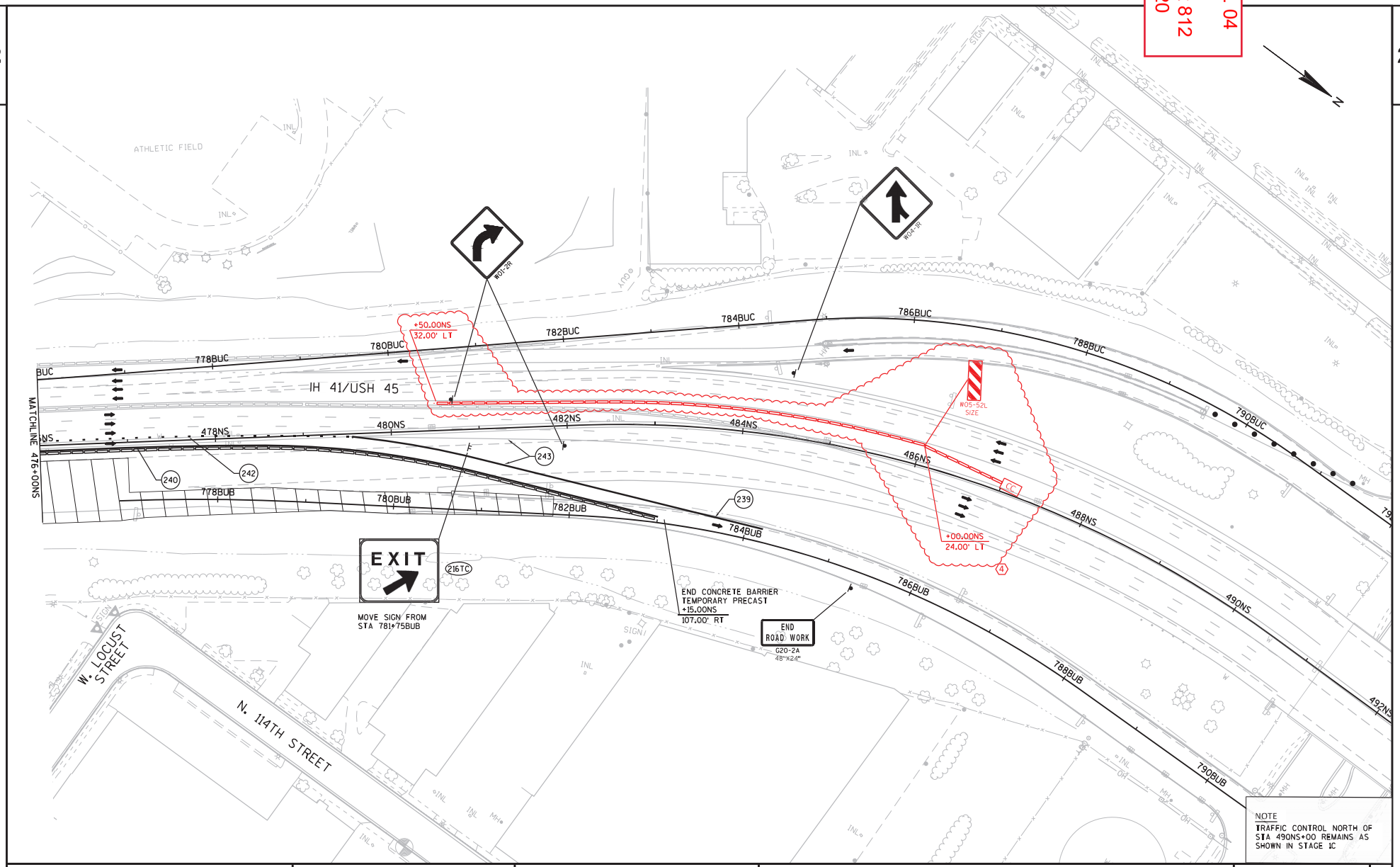
STAGE 2B - IH 41/USH 45

* STA 00+17 NSNB TO STA 627+99 NSNB DO NOT CONSTRUCT NB SHOULDER CONCRETE PAVEMENT INSIDE OF SHOULDER CROWN (4)

Addendum No. 04
ID 1060-33-84
Revised Sheet 802
October 6, 2020

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	TRAFFIC CONTROL - IH 41/USH 45 STAGE 2B OVERVIEW	SHEET 802	E

Addendum No. 04
ID 1060-33-84
Revised Sheet 812
October 6, 2020

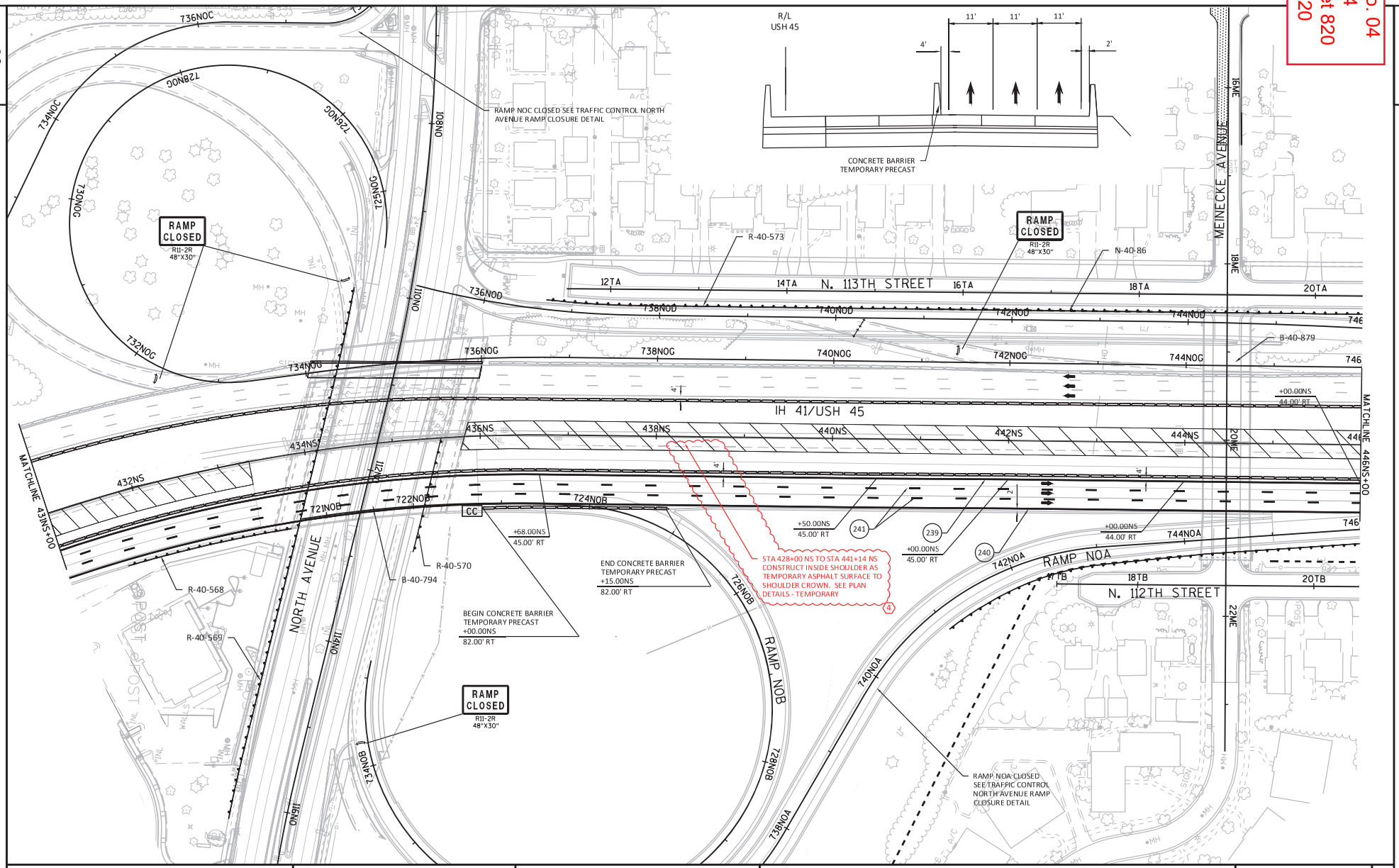


NOTE
TRAFFIC CONTROL NORTH OF STA 490NS+00 REMAINS AS SHOWN IN STAGE 1C

PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	TRAFFIC CONTROL - IH 41/USH 45 STAGE 2B	SHEET 812	E

FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\F45_TRAFFIC_CONTROL\026204_S2B.DWG
LAYOUT NAME - 026204_S2B - 10
PLOT DATE : 10/4/2020 8:43 PM PLOT BY : SCHARLAU, DAVID A PLOT NAME : PLOT SCALE : **********
WISDOT/CADDS SHEET 42

Addendum No. 04
ID 1060-33-84
Revised Sheet 820
October 6, 2020



PROJECT NO: 1060-33-84	HWY: IH 41	COUNTY: MILWAUKEE	TRAFFIC CONTROL - IH 41/ USH 45 STAGE 3	SHEET 820	E

FILE NAME : W:\PDS\C3D\10603316\84\DSN\PLAN\F45_TRAFFIC_CONTROL\026302_S3.DWG
LAYOUT NAME - 026302_S3 - 07
PLOT DATE : 10/3/2020 11:21 PM PLOT BY : SCHARLAU, DAVID A PLOT NAME : PLOT SCALE : 1 IN:100 FT
WISDOT/CADDS SHEET 42

REMOVING MODULAR BLOCK WALL

4

STAGE	ROADWAY	STATION	TO	STATION	OFFSET	SPV.0090.0003 REMOVING MODULAR BLOCK RETAINING WALL LF
2	**PROJECT ID 1060-33-84**					
	RAMPS					
	NOD					
		735+75NOD	-	736+00NOD	LT	120
	LOCAL ROADS					
	MAYFAIR RD.					
		595+85M	-	597+00M	LT	125
	PROJECT ID 1060-33-84 TOTAL					245

SURVEY PROJECT

STAGE	LOCATION	SPV.0105.0604 SURVEY PROJECT 1060-33-84 LS	SPV.0105.0605 SURVEY PROJECT 1060-34-77 LS
ALL	**PROJECT**	1	1
	TOTAL	1	1

VIBRATION MONITORING

STAGE	LOCATION	SPV.0135.0601 VIBRATION MONITORING MON
ALL	**PROJECT ID 1060-33-84**	32
	TOTAL	32

MOBILIZATION

STAGE	LOCATION	619.1000 MOBILIZATION EACH
ALL	**PROJECT ID 1060-33-84**	0.995
	PROJECT ID 1060-34-77	0.001
	TOTAL	0.996

Addendum No. 04
ID 1060-33-84
Revised Sheet 972
October 6, 2020

*ADDITIONAL QUANTITIES FOUND ELSEWHERE
CATEGORY 1000 UNLESS OTHERWISE NOTED

BASE AGGREGATE ITEMS

STAGE	ROADWAY	STATION	TO	STATION	* 305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	312.0110 SELECT CRUSHED MATERIAL TON
1	**PROJECT ID 1060-33-84**					
	MAINLINE					
	IH 41 TEMPORARY					
		385+90NS	-	398+00NS	3,329	3,264
		385+00NS	-	403+00NS	3,096	3,619
		413+35NS	-	434+24NS	6,422	6,423
		412+80NS	-	432+83NS	3,982	4,658
		439+25NS	-	447+50NS	1,030	1,203
		436+07NS	-	482+00NS	12,164	11,836
		471+00NS	-	485+00NS	3,773	4,411
		481+30NS	-	484+00NS	248	290
		480+00NS	-	483+00NS	245	287
		TEMPORARY STORM SEWER			898	--
	113TH STREET					
		11+50TA	-	27+50TA	3,056	--
	MEINECKE AVENUE					
		15+05ME	-	16+65ME	102	
	112TH STREET					
		17+30TB	-	20+80TB	824	--
		TEMPORARY UNDISTIRBUTED			120	--
	SUBTOTALS				39,289	35,991
2	**PROJECT ID 1060-33-84**					
	MAINLINE					
	IH 41 NB					
		385+89NS	-	403+20NS	6,558	16,613
		413+17NS	-	433+23NS	6,483	16,424
		435+81NS	-	477+00NS	14,366	36,392
		477+00NS	-	486+00NS	921	1,134
		TEMPORARY STORM SEWER			395	--
	IH 41 TEMPORARY					
		386+00NS	-	394+00NS	1,065	--
		471+00NS	-	475+00NS	804	--
		480+00NS	-	485+00NS	702	--
	RAMPS					
	MA					
		810+90MA	-	600+00M	456	1,156
	NOA					
		119+04NO	-	745+00NOA	2,259	5,722
	NOB					
		723+66NOB	-	724+85NOB	1,313	3,327
	LOCAL ROADS					
	NORTH AVENUE					
		97+19NO	-	120+49NO	17,203	21,790
	114TH STREET					
		CUL-DE-SAC			225	--

BASE AGGREGATE ITEMS (CONTINUED)

STAGE	ROADWAY	STATION	TO	STATION	* 305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	312.0110 SELECT CRUSHED MATERIAL TON
	MAYFAIR ROAD					
		593+42M	-	595+82M	295	--
	SUBTOTALS				53,045	102,558
2	**PROJECT ID 1060-34-77**					
	LOCAL ROADS					
	116TH ST					
		160+00TX	-	162+75TX	1,200	1,519
		164+09TX	-	167+70TX	436	552
	SUBTOTALS				1,636	2,071
3	**PROJECT ID 1060-33-84**					
	MAINLINE					
	IH 41 TEMPORARY					
		386+00NS	-	394+00NS	1,065	--
		471+90NS	-	477+00NS	407	--
		481+00NS	-	485+25NS	600	--
	IH 41					
		459+00NS	-	471+00NS	--	1,215
	SUBTOTALS				2,072	1,215
4	**PROJECT ID 1060-33-84**					
	MAINLINE					
	IH 41 SB					
		385+90NS	-	402+98NS	5,467	13,849
		412+65NS	-	433+74NS	7,395	18,734
		436+17NS	-	486+00NS	14,981	36,753
	RAMPS					
	BUC					
		779+62BUC	-	791+23BUC	2,843	7,203
	NOC					
		726+87NOC	-	737+50NOC	2,281	5,778
	NOD					
		735+68NOD	-	747+90NOD	2,879	7,293
	NOG					
		109+91NO	-	748+93NOG	1,270	3,217
	SUBTOTALS				37,116	92,827

BASE AGGREGATE ITEMS (CONTINUED)

STAGE	ROADWAY	STATION	TO	STATION	* 305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	312.0110 SELECT CRUSHED MATERIAL TON
5	**PROJECT ID 1060-33-84**					
	MAINLINE					
	IH 41 NB					
		370+90NS	-	385+90NS	1,013	2,160
	IH 41 SB					
		370+90NS	-	385+90NS	1,013	2,160
	LOCAL ROADS					
	UNDERWOOD CREEK PARKWAY					
					651	--
	SUBTOTALS				2,677	4,320
ALL	**PROJECT ID 1060-33-84**					
	CORE SYSTEM RAMPS					
	RAMP CS					
		573+00CS	-	575+13CS	240	584
		578+54CS	-	579+46CS	90	21
	RAMP WS					
		588+90WS	-	591+29WS	250	70
	SUBTOTALS				580	675
	PROJECT ID 1060-33-84 TOTAL				134,779	237,586
	PROJECT ID 1060-34-77 TOTAL				1,636	2,071
	TOTAL				136,415	239,657

Addendum No. 04
ID 1060-33-84
Revised Sheet 975
October 6, 2020

*ADDITIONAL QUANTITIES FOUND ELSEWHERE
CATEGORY 1000 UNLESS OTHERWISE NOTED

4

CONCRETE PAVEMENT ITEMS

STAGE	ROADWAY	STATION	TO	STATION	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY	415.1410 CONCRETE PAVEMENT APPROACH SLAB HES SY	SPV.0180.0101 CONCRETE PAVEMENT 12-INCH SPECIAL SY	SPV.0180.0102 CONCRETE PAVEMENT HES 12-INCH SPECIAL SY	SPV.0180.0103 CONCRETE PAVEMENT 10-INCH SPECIAL SY
2	**PROJECT ID 1060-33-84**								
	MAINLINE								
	IH 41 NB								
		385+89NS	-	403+20NS	--	--	18,987	--	--
		413+17NS	-	433+23NS	--	--	17,945	--	--
		435+81NS	-	477+00NS	--	--	39,334	--	--
		403+25NS			185	--	--	--	
		412+75NS			260	--	--	--	--
		433+50NS			286	--	--	--	--
		435+85NS			239	--	--	--	--
	RAMPS								
	MA								
		802+82MA	-	804+07MA	--	--	408	--	--
		810+90MA	-	814+28MA	--	--	--	--	1,038
		804+00MA			41	--	--	--	--
		811+00MA			46	--	--	--	--
	NOA								
		731+68NOA	-	745+00NOA	--	--	--	--	6,030
	NOB								
		723+66NOB	-	724+85NOB	--	--	317	--	--
		725+00NOB	-	733+50NOB	--	--	--	--	3,640
	BUB								
		776+99BUB	-	781+81BUB	--	--	1,379	--	--
	SUBTOTALS				1,057	--	78,370	--	10,708

Addendum No. 04
ID 1060-33-84
Revised Sheet 977
October 6, 2020

(CONTINUED ON NEXT SHEET)

*ADDITIONAL QUANTITIES FOUND ELSEWHERE
CATEGORY 1000 UNLESS OTHERWISE NOTED

CONCRETE PAVEMENT ITEMS (CONTINUED)

4

STAGE	ROADWAY	STATION	TO	STATION	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY	415.1410 CONCRETE PAVEMENT APPROACH SLAB HES SY	SPV.0180.0101 CONCRETE PAVEMENT 12-INCH SPECIAL SY	SPV.0180.0102 CONCRETE PAVEMENT HES 12-INCH SPECIAL SY	SPV.0180.0103 CONCRETE PAVEMENT 10-INCH SPECIAL SY
4	**PROJECT ID 1060-33-84**								
	MAINLINE								
	IH 41 SB								
		385+90NS	-	402+98NS	--	--	15,622	--	--
		412+65NS	-	433+74NS	--	--	19,566	--	--
		436+17NS	-	477+00NS	--	--	37,287	--	--
		477+00NS	-	484+55NS	--	--	2,026	--	--
		403+15NS			182	--	--	--	--
		412+45NS			251	--	--	--	--
		433+80NS			242	--	--	--	--
		436+00NS			205	--	--	--	--
	RAMPS								
	BUC								
		779+62BUC	-	792+51BUC	--	--	--	--	6,726
	NOC								
		726+87NOC	-	737+45NOC	--	--	--	--	6,374
	NOD								
		735+68NOD	-	747+90NOD	--	--	--	--	3,917
	NOG								
		725+00NOG	-	747+89NOG	--	--	--	--	7,481
		733+90NOG			60	--	--	--	--
		735+85NOG			59	--	--	--	--
		747+89NOG	-	748+93NOG	--	--	524	--	--
5	**PROJECT ID 1060-33-84**								
	MAINLINE								
	IH 41 NB								
		370+90NS	-	385+90NS	--	--	2,389	--	--
	IH 41 SB								
		370+90NS	-	385+90NS	--	--	2,389	--	--
	SUBTOTALS				999	--	79,802	--	24,498
ALL	**PROJECT ID 1060-33-84**								
	CORE SYSTEM RAMPS								
	RAMP CS								
		573+00CS	-	575+13CS	--	--	--	619	--
		578+54CS	-	579+46CS	--	--	--	290	--
	RAMP WS								
		588+90WS	-	591+29WS	--	--	--	737	--
	HWY 100 ON RAMP								
	RAMP SL								
		441+96SL	-	442+26SL	--	55	--	55	--
	SUBTOTALS				--	55	--	1,701	--
	PROJECT ID 1060-33-84 TOTAL				2,056	55	158,172	1,701	35,206

Addendum No. 04
ID 1060-33-84
Revised Sheet 978
October 6, 2020

*ADDITIONAL QUANTITIES FOUND ELSEWHERE
CATEGORY 1000 UNLESS OTHERWISE NOTED

PERMANENT CRASH CUSHIONS

4

614.0805

STAGE	ROADWAY	LOCATION	CRASH CUSHIONS PERMANENT LOW MAINTENANCE EACH	BACK WIDTH FT	OBJECT MARKING PATTERN	CRASH TEST LEVEL	TRAFFIC DIRECTION	TRAFFIC LOCATION	CRASH CUSHION SHIELDS
1	**PROJECT ID 1060-33-84**								
	LOCAL ROADS								
	MAYFAIR ROAD	593+51M, 1.9' RT	1	2	OM-3L (W5-58L SIGN PLATE)	TL-2	BIDIRECTIONAL	L AND R	PERMANENT CONCRETE BARRIER IN MEDIAN
2	**RAMPS**								
	MA	802+70MA, 22.3' LT	1	2	OM-3C (W5-58M SIGN PLATE)	TL-3	UNIDIRECTIONAL	L AND R	PERMANENT CONCRETE BARRIER IN GORE
	NOA	733+42NOA, 18.0' RT	1	2	OM-3R (W5-58R SIGN PLATE)	TL-2	UNIDIRECTIONAL	L	PERMANENT CONCRETE BARRIER ON SHOULDER
	NOB	724+78NOB, 20.8' LT	1	2	OM-3C (W5-58M SIGN PLATE)	TL-3	UNIDIRECTIONAL	L AND R	PERMANENT CONCRETE BARRIER IN GORE
4	**RAMPS**								
	NOD	744+96NOD, 21.8' RT	1	2	OM-3C (W5-58M SIGN PLATE)	TL-3	UNIDIRECTIONAL	L AND R	PERMANENT CONCRETE BARRIER IN GORE
	NOG	749+32NOG, 7.3' RT	1	2	OM-3C (W5-58M SIGN PLATE)	TL-3	UNIDIRECTIONAL	L AND R	PERMANENT CONCRETE BARRIER IN GORE
	BUC	790+73BUC, 18.0' LT	1	2	OM-3R (W5-58R SIGN PLATE)	TL-2	UNIDIRECTIONAL	L	PERMANENT CONCRETE BARRIER ON SHOULDER
	PROJECT ID 1060-33-84 TOTAL		7						

Addendum No. 04
ID 1060-33-84
Revised Sheet 981
October 6, 2020

*ADDITIONAL QUANTITIES FOUND ELSEWHERE
CATEGORY 1000 UNLESS OTHERWISE NOTED

ASPHALTIC ITEMS

STAGE	ROADWAY	STATION	TO	STATION	* 455.0605 TACK COAT GAL	460.5223 HMA PAVEMENT 3LT 58-28S TON	460.5224 HMA PAVEMENT 4LT 58-28S TON	460.5225 HMA PAVEMENT 5LT 58-28S TON	460.6223 HMA PAVEMENT 3MT 58-28S TON	* 460.6224 HMA PAVEMENT 4MT 58-28S TON	460.7424 HMA PAVEMENT 4HT 58-28H TON	465.0120 ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES TON	* 465.0125 ASPHALTIC SURFACE TEMPORARY TON	450.4000 HMA COLD WEATHER PAVING TON	COMMENTS
1	**PROJECT ID 1060-33-84**														
	MAINLINE														
	IH 41 TEMPORARY														
		385+00NS	-	403+00NS	429	--	--	--	--	--	--	--	1,768	1,768	MEDIAN
		385+89NS	-	491+00NS	2,714	--	--	--	--	--	--	--	6,242	6,242	IH 41 SB MILL & OVERLAY
		385+89NS	-	491+00NS	250	--	--	--	--	--	--	--	290	290	IH 41 NB FULL LANE REPAIR
		385+90NS	-	398+00NS	387	--	--	--	--	--	--	--	1,594	1,594	OUTSIDE
		412+80NS	-	432+83NS	555	--	--	--	--	--	--	--	2,322	2,322	MEDIAN
		413+35NS	-	434+24NS	758	--	--	--	--	--	--	--	3,124	3,124	OUTSIDE
		436+07NS	-	482+00NS	1,402		--	--	--	--	--	--	5,782	5,782	OUTSIDE
		439+25NS	-	447+50NS	145		--	--	--	--	--	--	600	600	MEDIAN
		471+00NS	-	485+00NS	522	--	--	--	--	--	--	--	2,155	2,155	MEDIAN
		481+30NS	-	484+00NS	34	--	--	--	--	--	--	--	142	142	RAMP
		480+00NS	-	483+00NS	34	--	--	--	--	--	--	--	140	140	GORE
	RESTORATION AT STRUCTURES														
		VARIOUS			17	--	--	--	--	--	--	--	150	--	
	113TH STREET														
		11+54TA	-	35+15TA	376	679	798	--	--	--	--	--	--	--	
	MEINECKE AVENUE														
		15+05ME	-	16+65ME	35	35	54	--	--	--	--	--	--	--	
	112TH STREET														
		17+35TB	-	33+00TB	250	183	532	--	--	--	--	--	--	--	
		TEMPORARY UNDISTRIBUTED			8	--	--	--	--	--	--	--	70	--	TEMPORARY FOR ACCESS
	SUBTOTALS				7,916	897	1,384	--	--	--	--	--	24,379	24,159	
2	**PROJECT ID 1060-33-84**														
	MAINLINE														
	IH 41 NB														
		477+00NS	-	486+00NS	210	--	--	--	483	--	546	--	--	--	
	IH 41 TEMPORARY														
		600+17NSNB	-	614+90NSNB	95	--	--	--	--	--	--	--	429	--	NB MEDIAN SHOULER
		622+81NSNB	-	627+99NSNB	35	--	--	--	--	--	--	--	155	--	NB MEDIAN SHOULER
	RAMPS														
	BUB														
		781+81BUB	-	790+66BUB	144	--	--	--	--	305	--	--	--	--	
	LOCAL ROADS														
	NORTH AVENUE														
		VARIOUS			--	--	--	--	--	--	--	70	--	--	DRIVEWAYS & PARKING LOTS
		97+19NO	-	99+25NO	26	--	--	--	49	32	--	--	--	--	
		95+00NO	-	99+25NO	1,168	--	--	--	4,731	3,125	--	--	--	--	
		120+50NO	-	124+75NO	209	--	--	--	--	440	--	--	--	--	
	114TH STREET														
		CUL-DE-SAC			26	68	54	--	--	--	--	--	--	--	
	PARKING LOT														WAUWATOSA DPW YARD & RUSS DARROW
					--	--	--	--	--	--	--	1,141	--	--	
	SUBTOTALS				1,913	68	54	--	5,263	3,902	546	1,211	584	--	

(CONTINUED ON NEXT SHEET)

*ADDITIONAL QUANTITIES FOUND ELSEWHERE

CATEGORY 1000 UNLESS OTHERWISE NOTED

Addendum No. 04
ID 1060-33-84
Revised Sheet 982
October 6, 2020

ASPHALTIC ITEMS (CONTINUED)

STAGE	ROADWAY	STATION	TO	STATION	* 455.0605 TACK COAT GAL	460.5223 HMA PAVEMENT 3LT 58-28S TON	460.5224 HMA PAVEMENT 4LT 58-28S TON	460.5225 HMA PAVEMENT 5LT 58-28S TON	460.6223 HMA PAVEMENT 3MT 58-28S TON	* 460.6224 HMA PAVEMENT 4MT 58-28S TON	460.7424 HMA PAVEMENT 4HT 58-28H TON	465.0120 ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES TON	* 465.0125 ASPHALTIC SURFACE TEMPORARY TON	450.4000 HMA COLD WEATHER PAVING TON	COMMENTS
2	**PROJECT ID 1060-34-77**														
	LOCAL ROADS														
	116TH STREET														
		160+00TX	-	162+75TX	76	--	--	--	306	202	--	--	--	--	
		164+09TX	-	167+70TX	217	--	--	--	125	203	--	--	--	--	
	SUBTOTALS				293	--	--	--	431	405	--	--	--	--	
3	**PROJECT ID 1060-33-84**														
	MAINLINE														
	IH 41 TEMPORARY														
		386+00NS	-	394+00NS	98	--	--	--	--	--	--	--	405	405	MEDIAN
		471+90NS	-	477+00NS	56	--	--	--	--	--	--	--	232	232	MEDIAN
		481+00NS	-	485+25NS	83	--	--	--	--	--	--	--	343	343	MEDIAN
		614+90NSNB	-	620+23NSNB	39								173	173	NB MEDIAN SHOULDER
	SUBTOTALS				276	--	--	--	--	--	--	--	1,153	1,153	
4	**PROJECT ID 1060-33-84**														
	MAINLINE														
	IH 41 SB														
		477+00NS	-	486+00NS	210	--	--	--	483	--	546	--	--	--	
	RAMPS														
	BUC														
		792+44BUC	-	792+65BUC	1	--	--	--	--	6	--	--	--	--	
	LOCAL ROADS														
	MAYFAIR ROAD														
		591+50M	-	600+50M	317	--	--	--	--	673	--	--	--	--	MILL AND OVERLAY AREA
		SOUTHBOUND			30	--	--	--	106	36	--	--	--	--	LANE ONE - SEE TYPICAL SECTION
		NORTHBOUND			4	--	--	--	11	9	--	--	--	--	LANE ONE - SEE TYPICAL SECTION
	SUBTOTALS				562	--	--	--	600	724	546	--	--	--	
5	**PROJECT ID 1060-33-84**														
	MAINLINE														
	UNDERWOOD PARKWAY														
		48+60UC	-	52+00UC	44	155	--	107	--	--	--	--	--	--	
	SUBTOTALS				44	155	--	107	--	--	--	--	--	--	
	PROJECT ID 1060-33-84 UNDISTRIBUTED				600	--	--	--	--	--	2,500	--	2,500	--	
	PROJECT ID 1060-33-84 TOTAL				11,311	1,120	1,438	107	5,863	4,626	3,592	1,211	28,616	25,312	
	PROJECT ID 1060-34-77 TOTAL				293	--	--	--	431	405	--	--	--	--	

*ADDITIONAL QUANTITIES FOUND ELSEWHERE CATEGORY 1000 UNLESS OTHERWISE NOTED

Addendum No. 04
ID 1060-33-84
Revised Sheet 983
October 6, 2020

3

TEMPORARY ACCESS GATES AT RAIL ROAD

LOCATION		SPV.0060.0170 TEMPORARY ACCESS GATES AT CPRR EACH	SPV.0060.0171 TEMPORARY CROSSING AT CPRR EACH
PROJECT ID 1060-33-84			
	CPRR	4	2
PROJECT ID 1060-33-84 TOTAL		4	2

ICE FOR ROADWAY CONCRETE BARRIER

STAGE	LOCATION	501.1000.S ICE HOT WEATHER CONCRETING LB
ALL	**PROJECT ID 1060-33-84**	90,000
	TOTAL	90,000

Addendum No. 04
ID 1060-33-84
Added Sheet 1011A
October 6, 2020

*ADDITIONAL QUANTITIES FOUND ELSEWHERE
CATEGORY 1000 UNLESS OTHERWISE NOTED

3

EARTH WORK SUMMARY

Division	From/To Station	Location	A Total Cut Volume (CY)	B 205.0100 Excavation Common (CY) (1)	C 205.0501.S.0001 Excavation, Hauling, and Disposal of Petroleum Contaminated Soil (TON)	D SPV. 0035.0003 Excavation, Hauling, and Reuse of Low-Level Contaminated Soil (CY) (7)	E SPV. 0195.0004 Excavation, Hauling, and Disposal of Low-Level Contaminated Soil (TON) TON = CY*1.7	F SPV. 0035.0001 EBS Excavation (CY) (2) (5)	Available Material	SPV. 0035.0002 EBS Backfill (CY) (2) Factor 1.00	209.1100 Backfill Granular Grade 1 (CY) (8)	SPV. 0195.0001 Fly Ash Stabilization (6)	Unexpanded Fill (3)	Expanded Fill (4) Factor 1.10	Waste (5)
		MAINLINE													
1	386+00NS TO 398+00NS	SB	14,635	14,635	0	0	0	483	14,635	483	--	43	279	307	14,328
	413+35NS TO 434+00NS	TEMP	12,305	12,305	0	0	0	951	12,305	951	--	84	713	784	11,521
	436+00NS TO 482+00NS	WIDENING	34,981	34,981	0	0	0	1,752	34,981	1752	--	154	5,171	5,688	29,293
		MAINLINE													
	385+00NS TO 403+00NS	TEMP MEDIAN	2,755	2,755	0	0	0	536	2,755	536	--	47	99	109	2,646
	418+00NS TO 432+50NS	TEMP MEDIAN	4,592	4,592	0	0	0	534	4,592	534	--	47	0	0	4,592
	442+00NS TO 447+50NS	TEMP MEDIAN	1,110	1,110	0	0	0	144	1,110	144	--	13	0	0	1,110
	474+00NS TO 477+00NS	TEMP MEDIAN	4,463	4,463	0	0	0	653	4,463	653	--	57	60	66	4,397
		LOCAL													
	97+19 TO 100+00	W. NORTH AVE	2,002	2,002	0	0	0	624	2,002	624	--	--	16	17	1,985
	100+50 TO 120+50	W. NORTH AVE EB	17,071	6,844	782	4,000	9,804	4,444	10,844	4,444	--	--	26	28	10,815
	100+50 TO 120+50	W. NORTH AVE WB	21,001	10,700	0	4,000	10,712	4,444	14,700	4,444	--	--	19	21	14,679
	88+75 TO 89+00	PRIVATE DRIVE	89	89	0	0	0	278	89	278	--	--	0	0	89
	22+00 TO 23+50	W. MEINECKE AVE	626	626	0	0	0	333	626	333	--	--	28	31	595
	17+50 TO 30+26	112TH ST	3,782	3,782	0	0	0	2,836	3,782	2,836	--	--	649	714	3,068
	16+80 TO 18+00	W. MEINECKE AVE	1,148	1,148	0	0	0	267	1,148	267	--	--	64	70	1,077
	11+60 TO 32+03	113TH ST	10,568	10,568	0	0	0	4,540	10,568	4,540	--	--	162	178	10,390
	160+00 TO 168+00	116TH ST	3,248	3,248	0	0	0	1,778	3,248	1,778	--	--	12	14	3,234
		UPRR													
	8+50 TO 17+50	TEMP SHOOFLY	1,176	1,176	0	0	0	0	1,176	0	6,673	--	6,144	--	1,176
	17+40 TO 17+80	TEMP SHOOFLY	80	80	0	0	0	0	80	0	0	--	0	--	80
	16+55 TO 17+40	TEMP SHOOFLY	0	0	0	0	0	0	0	0	380	--	380	--	0
	11+50 TO 17+50	FINAL CONFIG	1,049	1,049	0	0	0	0	1,049	0	2,652	--	2,596	--	1,049
	17+30 TO 17+60	FINAL CONFIG	550	550	0	0	0	0	550	0	0	--	0	--	550
	9+50 TO 17+50	FINAL CONFIG	5,060	5,060	0	0	0	0	5,060	0	0	--	0	--	5,060
	UNDISTRIBUTED	-	780	780	0	0	0	0	780	0	990	--	0	--	780
Division 1 Subtotal Stage 1			143,072	122,543	782	8,000	20,516	24,597	130,543	24,597	10,695	445	16,418	8,028	122,515

4 4 3 4

(CONTINUED ON NEXT SHEET)

Addendum No. 04
ID 1060-33-84
Revised Sheet 1012
October 6, 2020

CATEGORY 1000 UNLESS OTHERWISE NOTED

EARTH WORK SUMMARY (CONTINUED)

Division	From/To Station	Location	A Total Cut Volume (CY)	B 205.0100 Excavation Common (CY) (1)	C 205.0501.S.0001 Excavation, Hauling, and Disposal of Petroleum Contaminated Soil (TON)	D SPV. 0035.0003 Excavation, Hauling, and Reuse of Low-Level Contaminated Soil (CY) (7)	E SPV. 0195.0004 Excavation, Hauling, and Disposal of Low-Level Contaminated Soil (TON) TON = CY*1.7	F SPV. 0035.0001 EBS Excavation (CY) (2) (5)	Available Material	SPV. 0035.0002 EBS Backfill (CY) (2) Factor 1.00	209.1100 Backfill Granular Grade 1 (CY) (8)	SPV. 0195.0001 Fly Ash Stabilization (6)	Unexpanded Fill (3)	Expanded Fill (4) Factor 1.10	Waste (5)
4		MAINLINE													
	385+50 TO 480+00	IH 41 SB	86,636	86,636	0	0	0	10,500	86,636	10,500	--	924	1,211	1,333	85,303
	200+00 TO 228+62	IH 41 SB	17,544	17,544	0	0	0	3,180	17,544	3,180	--	280	1,250	1,375	16,168
		RAMPS													
	779+62 TO 792+50	BUC	7,709	7,709	0	0	0	1,431	7,709	1,431	--	126	1,123	1,235	6,474
	736+00 TO 744+00	NOD	8,652	8,652	0	0	0	889	8,652	889	--	78	0	0	8,652
	724+50 TO 733+00	NOG (GRADING)	20	20	0	0	0	944	20	944	--	83	6,600	7,260	-7,398
	728+00 TO 733+00	NOG	7,284	7,284	0	0	0	556	7,284	556	--	49	18,996	20,896	-12,714
	728+00 TO 733+00	NOC (GRADING)	19	19	0	0	0	556	19	556	--	49	8,784	9,662	-10,088
	728+00 TO 738+00	NOC (N40 WALL)	397	397	0	0	0	1,111	397	1,111	--	98	1,529	1,682	-1,285
	728+00 TO 732+50	NOC	1,700	1,700	0	0	0	611	1,700	611	--	54	0	0	1,700
Division 4 Subtotal Stage 4			129,959	129,959	0	0	0	19,778	129,959	19,778	0	1,740	39,493	43,443	86,812
5		LOCAL													
	48+80 TO 51+65	UNDERWOOD	480	480	0	0	0	633	480	633	--	--	56	62	418
	591+80 TO 599+00	N. MAYFAIR RD	2,159	2,159	0	0	0	1,600	2,159	1,600	--	--	0	0	2,159
Division 5 Subtotal Stage 5			2,639	2,639	0	0	0	2,233	2,639	2,233	0	0	56	62	2,577
TOTAL			461,895	441,725	782	8,000	20,516	70,523	449,725	70,523	11,768	4,290	76,810	92,273	376,604

Notes:

1) Excavation Common is equal to A - (C/1.7) - D - E
2) EBS Excavation SPV.00350100 (CY) to be backfilled with EBS Backfill SPV.0035.0101 (CY). EBS Excavation volume assumed as 25% roadway area (Freeway and Ramps) and 40% roadway area (local roads) at an average depth of 18-inches, in addition to locations shown in plans. All EBS Excavation to be wasted offsite unless specified by the engineer.
   EBS Backill Factor: 1.00
3) 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.
4) Expanded Fill. Factor = 1.10 Expanded Fill = Unexpanded Fill * Fill Factor
   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.
5) The storm sewer excavation is estimated to be between 60,000 and 90,000 cubic yards and total structural excavation from all structures is not estimated. 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. Waste does not include estimated yardage for EBS excavation (Column F).
6) Fly Ash Stabilization SPV.0195.0001 (TON). Fly Ash Stabilization volume assumed as 20% roadway area (Freeway and Ramps only) calculated at a rate of 110 pounds per square yard.
7) All Excavation, Hauling, and Reuse of Low-Level Contaminated Soil (D) shall be placed at locations as shown in the plans and capped with a 2-ft clay cap and topsoil (clay cap and topsoil paid separately).

3 4

Addendum No. 04
ID 1060-33-84
Revised Sheet 1014
October 6, 2020

ALL ITEMS CATEGORY 1000

CATEGORY 1000 UNLESS OTHERWISE NOTED

FILE NAME : _____ PLOT DATE : _____ PLOT BY : _____ PLOT NAME : _____ PLOT SCALE : 1:1

CONCRETE BARRIER TRANSITION ITEMS

CATEGORY	ROADWAY	603.3675 CONCRETE BARRIER TRANSITION TYPE V51 TO S42 EACH	603.3535* CONCRETE BARRIER TRANSITION TYPE S36 TO S42 EACH	603.3413 CONCRETE BARRIER TRANSITION TYPE F32DF TO S36 EACH
	PROJECT ID 1060-33-84			
1000	TEMPORARY UPRR PIER	2	1	1
	PROJECT 1060-33-84 TOTAL	2	1	1

4

* = ADDITIONAL QUANTITIES FOUND ELSEWHERE

TEMPORARY SHORING

CATEGORY	STAGE	LOCATION	STATION	TO	STATION	OFFSET	511.1100 TEMPORARY SHORING SF
		PROJECT ID 1060-33-84					
1000	1A	IH 41/USH 45 SB	398+00 NS	-	403+30 NS	LT	2,140
		SUBTOTALS					2,140
1000	1B	IH 41/USH 45 SB	412+38 NS	-	417+00 NS	LT	2,310
			422+00 NS	-	426+00 NS	LT	2,000
			438+00 NS	-	442+00 NS	RT	2,000
		SUBTOTALS					6,310
1000	2	NORTH AVENUE	110+75 NO	-	111+75 NO	LT	525
			110+75 NO	-	111+75 NO	LT	540
			110+75 NO	-	111+75 NO	RT	540
			110+75 NO	-	111+75 NO	RT	525
		SUBTOTALS					2,130
		PROJECT ID 1060-33-84 TOTAL					10,580

FENCE SAFETY

CATEGORY	ROADWAY	616.0700.S FENCE SAFETY LF	SPV.0090.0900 FENCE TEMPORARY 6-FT LF
	PROJECT ID 1060-33-84		
1000	THE RESERVE AT MAYFAIR		
	NORTHEAST CORNER	--	75
	SOUTHEAST CORNER	--	75
	RUSS DARROW LOT	--	925
	113TH STREET	--	1,400
	MEINECKE AVENUE	--	300
	UNDISTRIBUTED	5,000	6,000
	PROJECT 1060-33-84 TOTAL	5,000	8,775

TRAFFIC CONTROL

CATEGORY	ROADWAY	643.5000 TRAFFIC CONTROL EACH
1000	1060-33-84	0.95
	PROJECT ID 1060-33-84 TOTAL	0.95
1000	1060-37-77	0.01
	PROJECT ID 1060-37-77 TOTAL	0.01

Addendum No. 04
ID 1060-33-84
Revised Sheet 1098
October 6, 2020

FILE NAME : W:\PDS\C3D\10603316\84\Dsn\Plan\F45 Traffic Control\030204_mq_tc.ppt PLOT DATE : 10/5/2020 12:34:03 PM PLOT BY : MSCD1S PLOT NAME : 030204_mq_tc1 PLOT SCALE : 1:1

TEMPORARY CONCRETE BARRIER ITEMS

CATEGORY	STAGE	LOCATION	STATION		STATION	OFFSET	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	SPV.0090.0910 GLARE SCREENS TEMPORARY LF	SPV.0090.0920 CONCRETE BARRIER TEMPORARY PRECAST ANCHORING LF	SPV.0090.0925 CONCRETE BARRIER TEMPORARY PRECAST ANCHORED ON BRIDGE LF
		PROJECT ID 1060-33-84									
1000	1A	IH 41/USH 45 NB									
			370+90 NS	-	448+00 NS	RT	7,710	7,710	--	--	--
			435+50 NS	-	445+50 NS	RT	1,000	1,000	--	--	--
		IH 41/USH 45 SB									
			370+35 NS	-	405+25 NS	LT	3,490	3,490	--	--	--
			413+00 NS	-	434+00 NS	LT	2,100	2,100	--	--	--
			433+00 NS	-	445+75 NS	LT	1,275	1,275	--	--	--
		SUBTOTALS					15,575	15,575	--	--	--
1000	1B	IH 41/USH 45 SB									
			370+90 NS	-	403+37 NS	LT	3,247	3,247			
			388+00 NS	-	415+50 NS	LT	2,750	2,750	--	--	1,000
			412+50 NS	-	417+50 NS	LT	500	500	--	--	--
			433+00 NS	-	463+25 NS	LT	3,025	3,025	--	--	--
			451+00 NS	-	483+50 NS	LT	3,250	3,250	--	--	--
		MEINECKE AVENUE									
			BRIDGE				200	200	--	--	--
	4	MAYFAIR ROAD					430	430	--	--	--
		SUBTOTALS					13,402	13,402	--	--	1,000
1000	1C	IH 41/USH 45 NB									
			413+00 NS	-	445+00 NS	RT	3,200	3,200	1,000	300	--
			413+00 NS	-	440+00 NS	RT	2,700	2,700	--	--	--
			469+00 NS	-	487+00 NS	RT	200	1,800	--	--	--
		IH 41/USH 45 SB									
			413+00 NS	-	482+00 NS	LT	6,900	6,900	--	--	1,200
			414+00 NS	-	433+50 NS	LT	--	1,950	--	300	--
			441+50 NS	-	447+50 NS	LT	--	600	--	300	--
			471+20 NS	-	488+00 NS	LT	1,680	1,680	--	--	--
		113TH STREET									
			11+00 TA	-	25+00 TA	RT	1,400	1,400	--	--	--
		SUBTOTALS					16,080	20,230	1,000	600	1,200

Addendum No. 04
ID 1060-33-84
Revised Sheet 1099
October 6, 2020

(CONTINUED ON NEXT SHEET)

FILE NAME : W:\PDS\C3D\10603316\84\Dsn\Plan\F45 Traffic Control\030204_mq_tc.ppt PLOT DATE : 10/5/2020 12:34:03 PM PLOT BY : MSCD1S PLOT NAME : 030204_mq_tc2 PLOT SCALE : 1:1

TEMPORARY CONCRETE BARRIER ITEMS (CONTINUED)

CATEGORY	STAGE	LOCATION	STATION	TO	STATION	OFFSET	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	SPV.0090.0910 GLARE SCREENS TEMPORARY LF	SPV.0090.0920 CONCRETE BARRIER TEMPORARY PRECAST ANCHORING LF	SPV.0090.0925 CONCRETE BARRIER TEMPORARY PRECAST ANCHORED ON BRIDGE LF
1000	1C	SUBSTAGE 1									
		IH 41/USH 45 SB									
			413+00 NS	-	470+00 NS	LT	--	11,300	--	--	--
		SUBTOTALS					--	11,300	--	--	--
1000	1C	SUBSTAGE 2									
		IH 41/USH 45 NB									
			416+00 NS	-	440+00 NS	RT	--	5,400	--	--	--
		SUBTOTALS					--	5,400	--	--	--
1000	2A	IH 41/USH 45									
			366+00 NS	-	383+50 NS.	RT	1,750	1,750	--	--	--
			378+50 NS	-	394+00 NS	RT	1,550	1,550	--	--	--
			372+75 NS	-	390+72 NS	LT	1,797	1,797	--	--	--
			386+00 NS	-	398+00 NS	LT	1,200	1,200	--	--	--
			412+50 NS	-	418+75 NS	LT	625	625	--	300	--
			412+50 NS	-	433+90 NS	LT	2,140	2,140	--	--	--
			418+50 NS	-	423+00 NS	LT	450	450	--	300	--
			413+35 NS	-	434+10 NS	LT	2,075	2,075	--	300	--
			436+00 NS	-	471+92 NS	LT	3,592	3,592	--	300	--
			460+92 NS	-	471+92 NS	LT	1,100	1,100	--	--	--
			470+75 NS	-	486+35 NS	RT	1,560	1,560	--	--	--
			396+50 NS	-	417+75 NS	LT	2,125	2,125	--	300	1,000
			479+00 NS	-	485+25 NS	LT	625	625	650	--	--
			480+35NS	-	487+00NS	LT	665	665	--	--	--
		SUBTOTALS					21,254	21,254	650	1,500	1,000
1000	2B	IH 41/USH 45 NB									
			412+50 NS	-	434+00 NS	LT	--	2,150	--	300	--
			470+75 NS	-	483+15 NS	RT	--	1,240	--	--	--
		NORTH AVENUE									
			110+00 NO	-	114+00 NO	LT	400	400	--	--	--
			110+00 NO	-	112+30 NO	LT	230	230	--	--	--
			110+00 NO	-	113+00 NO	RT	300	300	--	--	--
			109+00 NO	-	113+00 NO	RT	400	400	--	--	--
		SUBTOTALS					1,330	4,720	--	300	--

4

Addendum No. 04
ID 1060-33-84
Revised Sheet 1100
October 6, 2020

(CONTINUED ON NEXT SHEET)

FILE NAME : W:\PDS\C3D\10603316\84\Dsn\Plan\F45 Traffic Control\030204_mq_tc.ppt PLOT DATE : 10/5/2020 12:34:03 PM PLOT BY : MSCD1S PLOT NAME : 030204_mq_tc3 PLOT SCALE : 1:1

TEMPORARY CONCRETE BARRIER ITEMS (CONTINUED)

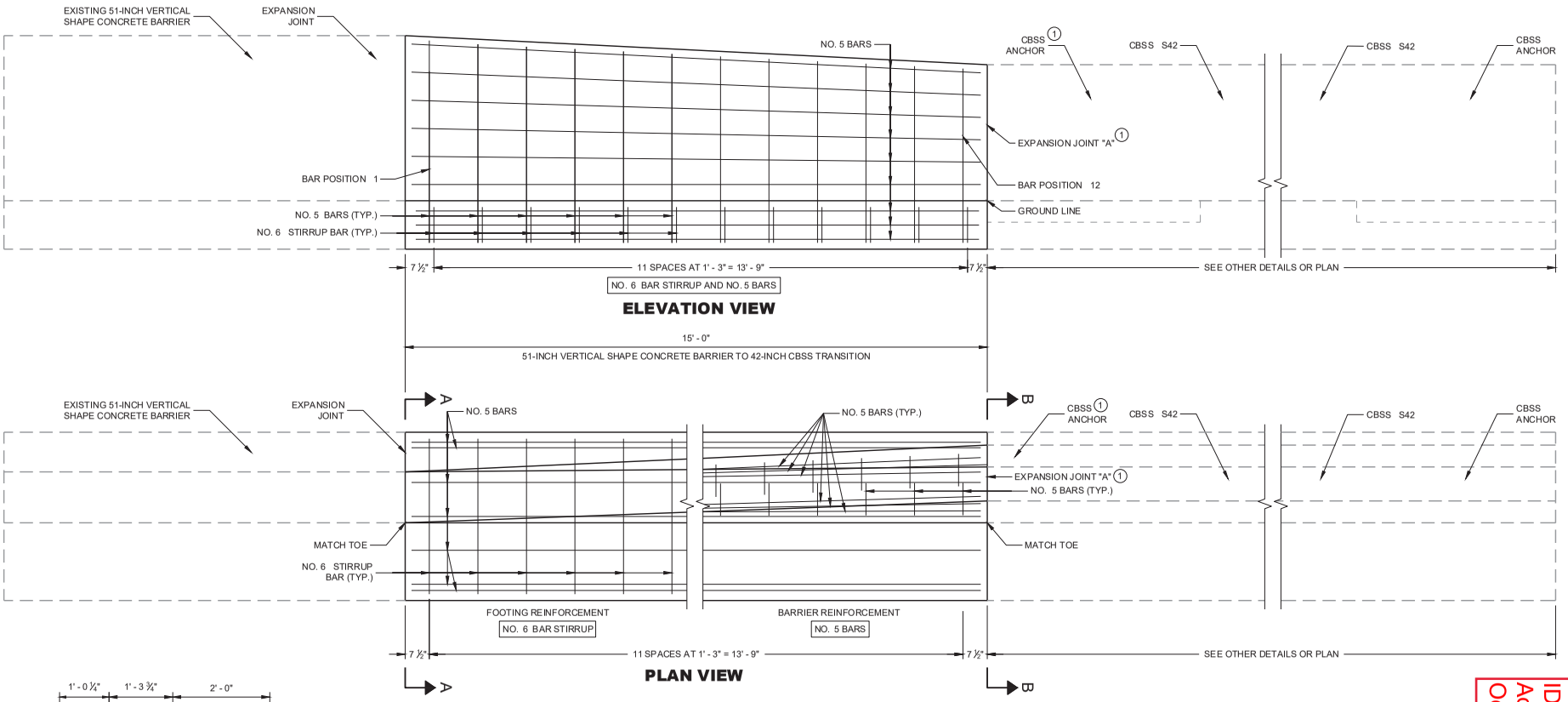
CATEGORY	STAGE	LOCATION	STATION	TO	STATION	OFFSET	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	SPV.0090.0910 GLARE SCREENS TEMPORARY LF	SPV.0090.0920 CONCRETE BARRIER TEMPORARY PRECAST ANCHORING LF	SPV.0090.0925 CONCRETE BARRIER TEMPORARY PRECAST ANCHORED ON BRIDGE LF
1000	3	IH 41/USH 45 NB									
			371+75 NS	-	374+00 NS	RT	225	225	--	--	--
			374+00 NS	-	403+00 NS	RT	1,900	2,900	2,200		
			403+00 NS	-	413+00 NS	RT	1,000	1,000	1,000		
			413+00 NS	-	434+00 NS	RT	2,100	2,100	2,100		
			434+00 NS	-	486+00 NS	RT	5,200	5,200	3,700		
			436+00 NS	-	438+15 NS	RT	215	215	--		
		IH 41/USH 45 SB									
			371+75 NS	-	398+00 NS	LT	--	2,625	--	--	--
			418+00NS	-	486+00NS	LT	--	6,800	--	--	--
		SUBTOTALS					10,640	21,065	9,000	--	--
1000	4	IH 41/USH 45 NB									
			386+00NS	-	486+00NS	RT	--	10,000	--	--	--
			412+57NS	-	434+85NS	RT	2,228	2,228	--	--	--
			435+80NS	-	441+15NS	RT	535	535	--	--	--
		IH 41/USH 45 SB									
			373+00 NS	-	381+00 NS	LT	--	800	800	--	--
			373+00 NS	-	385+00 NS	LT	1,200	1,200	--	--	--
			381+00 NS	-	385+00 NS	LT	400	400	--	--	--
			382+75 NS	-	386+00 NS	LT	--	325	--	--	--
			386+00 NS	-	394+00 NS	LT	--	800	--	--	--
			474+50 NS	-	482+00 NS	LT	--	750	--	--	--
			482+00 NS	-	486+00 NS	LT	400	400	--	--	--
			471+90 NS	-	487+00 NS	LT	1,510	1,510		--	--
		SUBTOTALS					6,273	18,948	800	--	--
1000	5	IH 41/USH 45 NB									
			367+00 NS	-	381+00 NS	RT	1,400	1,400	--		
			477+00 NS	-	480+50 NS	RT	--	350	--		
			480+50 NS	-	486+50 NS	RT	600	600	--	--	--
		IH 41/USH 45 SB									
			370+00 NS	-	373+00 NS	LT	300	300	--	--	--
			373+00 NS	-	385+00 NS	LT	--	1,200	--		
			385+00 NS	-	386+00 NS	LT	100	100	--		
			386+00 NS	-	394+00 NS	LT	--	800	--		
			394+00 NS	-	400+00 NS	LT	600	600	--		
			472+00 NS	-	487+00 NS	LT	--	1,500	--	--	--
			487+00 NS	-	491+75 NS	LT	475	475	--		
		SUBTOTALS					3,475	7,325	--	--	--
		PROJECT ID 1060-33-84 TOTAL					4 88,029	139,219	11,450	2,400	3,200

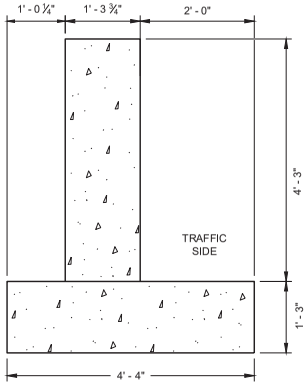
Addendum No. 04
ID 1060-33-84
Revised Sheet 1101
October 6, 2020

TEMPORARY CRASH CUSHION

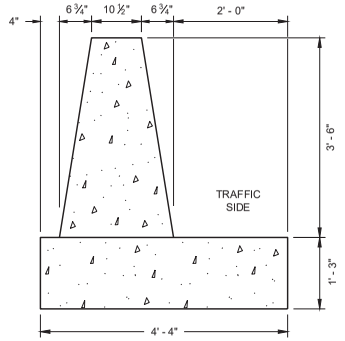
CATEGORY	STAGE	LOCATION	SPV.0060.0960 CRASH CUSHIONS TEMPORARY LOW MAINTENANCE EACH	614.0905 CRASH CUSHION TEMPORARY EACH	BACK WIDTH FT	OBJECT MARKING PATTERN	CRASH TEST LEVEL	DIRECTION OF TRAVEL	TRAFFIC LOCATION	CRASH CUSHIONS SHIELDS
		PROJECT ID 1060-33-84								
1000	1A	**IH 41/USH 45 NB**								
		370+90NS, 18'RT	1	--	2	OM-3L (W5-58L SIGN PLATE)	TL-3	UNIDIRECTIONAL	RIGHT	TEMPORARY CONCRETE BARRIER IN MEDIAN
		IH 41/USH 45 SB								
		405+25NS, 13'LT	1	--	2	OM-3L (W5-58L SIGN PLATE)	TL-3	UNIDIRECTIONAL	RIGHT	TEMPORARY CONCRETE BARRIER IN MEDIAN
		434+00NS, 24'LT	1	--	2	OM-3L (W5-58L SIGN PLATE)	TL-3	UNIDIRECTIONAL	RIGHT	TEMPORARY CONCRETE BARRIER IN MEDIAN
	1B	**IH 41/USH 45 SB**								
		415+50NS, 51'LT	1	--	2	OM-3L (W5-58L SIGN PLATE)	TL-3	UNIDIRECTIONAL	LEFT	TEMPORARY CONCRETE BARRIER RIGHT SHOULDER
		483+50NS, 103'LT	1	--	2	OM-3R (W5-58R SIGN PLATE)	TL-3	UNIDIRECTIONAL	LEFT	TEMPORARY CONCRETE BARRIER RIGHT SHOULDER
	1C	**IH 41/USH 45 NB**								
		413+00 NS, 4'RT	1	--	2	OM-3L (W5-58L SIGN PLATE)	TL-3	UNIDIRECTIONAL	RIGHT	TEMPORARY CONCRETE BARRIER IN MEDIAN
		413+00 NS, 41'RT	1	--	2	OM-3L (W5-58L SIGN PLATE)	TL-3	UNIDIRECTIONAL	LEFT	TEMPORARY CONCRETE BARRIER IN MEDIAN
		469+00NS, 10'RT	1	--	2	OM-3L (W5-58L SIGN PLATE)	TL-3	UNIDIRECTIONAL	RIGHT	TEMPORARY CONCRETE BARRIER IN MEDIAN
		IH 41/USH 45 SB								
		482+00NS, 93'LT	1	--	2	OM-3R (W5-58R SIGN PLATE)	TL-3	UNIDIRECTIONAL	LEFT	TEMPORARY CONCRETE BARRIER RIGHT SHOULDER
		488+00NS, 3.5'LT	1	--	2	OM-3L (W5-58L SIGN PLATE)	TL-3	UNIDIRECTIONAL	RIGHT	TEMPORARY CONCRETE BARRIER IN MEDIAN
				--						
4	2A	**IH 41/USH 45 SB**		-						
		487+00NS, 10'LT	1	-	2	OM-3R (W5-58R SIGN PLATE)	TL-3	UNIDIRECTIONAL	LEFT	TEMPORARY CONCRETE BARRIER LEFT SHOULDER
				-						
	3	**IH 41/USH 45 NB**								
		436+00NS, 82'RT	1	--	2	OM-3L (W5-58L SIGN PLATE)	TL-3	UNIDIRECTIONAL	RIGHT	TEMPORARY CONCRETE BARRIER IN MEDIAN
				--						
	4	**IH 41/USH 45 SB**								
		487+00NS, 60'LT	1	--	2	OM-3R (W5-58R SIGN PLATE)	TL-3	UNIDIRECTIONAL	LEFT	TEMPORARY CONCRETE BARRIER RIGHT SHOULDER
				--						
	5	**IH 41/USH 45 SB**								
		367+00NS, 10'RT	1	--	2	OM-3L (W5-58L SIGN PLATE)	TL-3	UNIDIRECTIONAL	RIGHT	TEMPORARY CONCRETE BARRIER IN MEDIAN
		400+50NS, 8.0'LT	1	--	2	OM-3L (W5-58L SIGN PLATE)	TL-3	UNIDIRECTIONAL	RIGHT	TEMPORARY CONCRETE BARRIER IN MEDIAN
		491+00NS, 4.0'LT	1	--	2	OM-3L (W5-58L SIGN PLATE)	TL-3	UNIDIRECTIONAL	RIGHT	TEMPORARY CONCRETE BARRIER IN MEDIAN
	2A	**NORTH AVENUE**								
		113+90NO, LT	--	1	2	OM-3L (W5-58L SIGN PLATE)	TL-3	UNIDIRECTIONAL	LEFT	TEMPORARY CONCRETE BARRIER RIGHT SHOULDER
		112+50NO, LT	--	1	2	OM-3L (W5-58L SIGN PLATE)	TL-3	UNIDIRECTIONAL	RIGHT	TEMPORARY CONCRETE BARRIER IN MEDIAN
		110+00NO, RT	--	1	2	OM-3L (W5-58L SIGN PLATE)	TL-3	UNIDIRECTIONAL	RIGHT	TEMPORARY CONCRETE BARRIER IN MEDIAN
		109+00NO RT	--	1	2	OM-3L (W5-58L SIGN PLATE)	TL-3	UNIDIRECTIONAL	LEFT	TEMPORARY CONCRETE BARRIER RIGHT SHOULDER
4		**MAYFAIR ROAD**								
		593+30M, 39' RT	3	--	2	OM-3L (W5-58L SIGN PLATE)	TL-3	UNIDIRECTIONAL	LEFT	TEMPORARY CONCRETE BARRIER RIGHT SHOULDER
		596+20M, 39' LT	3	--	2	OM-3L (W5-58L SIGN PLATE)	TL-3	UNIDIRECTIONAL	RIGHT	TEMPORARY CONCRETE BARRIER RIGHT SHOULDER
		PROJECT 1060-33-84 TOTAL	22	4						

Addendum No. 04
ID 1060-33-84
Revised Sheet 1102
October 6, 2020





SECTION A - A



SECTION B - B

GENERAL NOTES

CONSTRUCT PER STANDARD SPECIFICATION 603.

SPLICES OF LONGITUDINAL BARS TO BE 2' LONG AND FIRMLY TIED AND FASTENED TOGETHER UNLESS OTHERWISE NOTED.

4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATIONS SECTION 501.

USE ¾" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS OTHERWISE NOTED.

THE NUMBER IN BAR DESIGNATION REPRESENTS THE BARS LOCATION.

2" CLEAR COVER TYPICAL.

① EXPANSION JOINT "A" MAY BE REPLACED WITH A COLD JOINT PROVIDED THAT 3 FEET OF LAP OF LONGITUDINAL STEEL IS PROVIDED. IF COLD JOINT IS USED, ANCHOR IS NOT REQUIRED.

Addendum No. 04
ID 1060-33-84
Added Sheet 1421A
October 6, 2020

51-INCH VERTICAL SHAPE CONCRETE BARRIER TO 42-INCH SINGLE SLOPE CONCRETE BARRIER TRANSITION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B40 - 02g

6

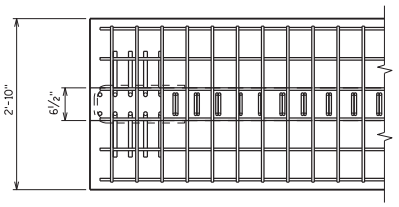
6

SDD 14B40 - 02g

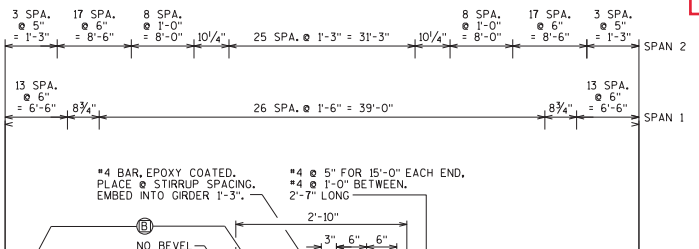
1421A

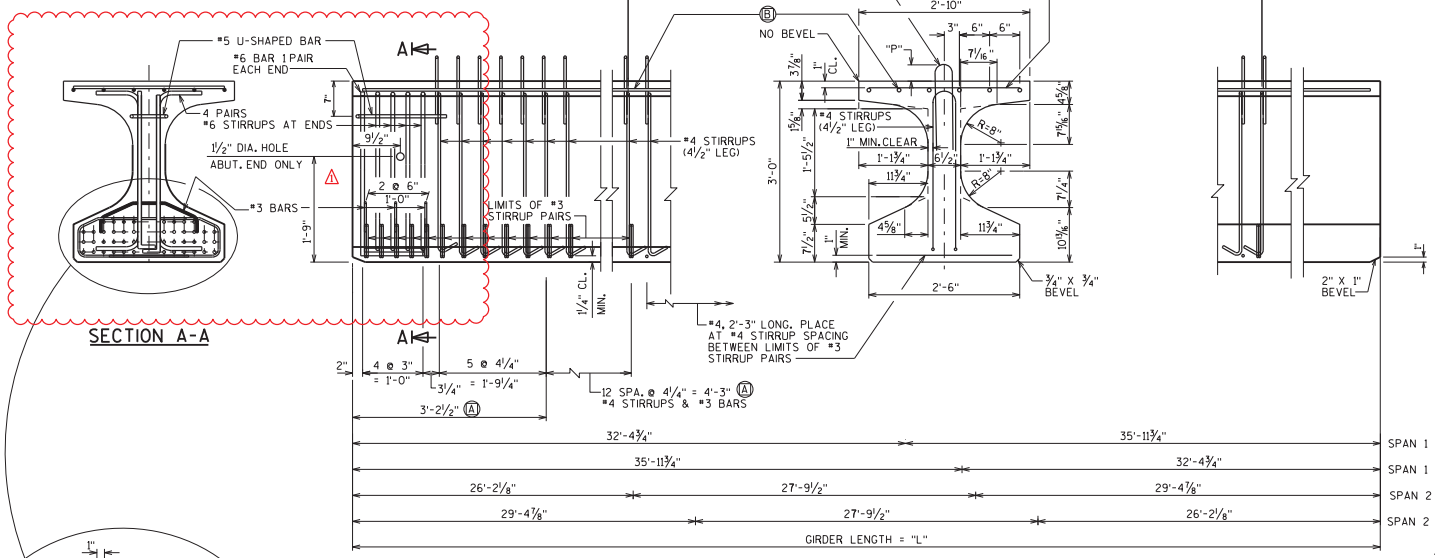
Addendum No. 04
ID 1060-33-84
Revised Sheet 1744
October 6, 2020

STATE PROJECT NUMBER
1060-33-84



TOP FLANGE



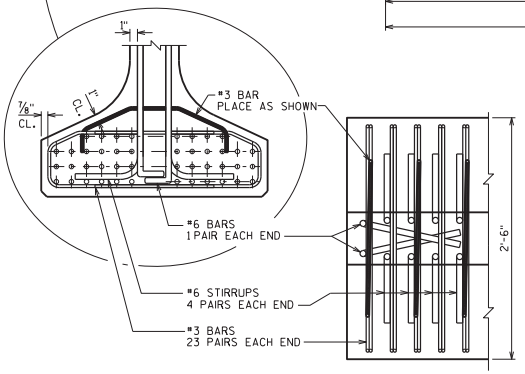


SIDE VIEW & TYPICAL SECTION IN SPAN

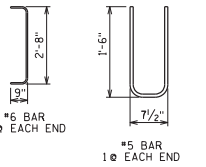
Ⓐ DETAIL TYP. AT EACH END

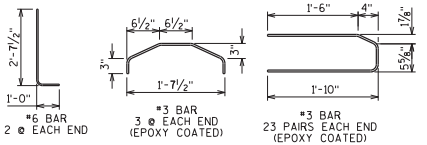
Ⓑ 6 #4 BARS, FULL LENGTH, MIN. LAP = 1'-11"

▶▶ = DIAPHRAGM HOLE SPACING FOR STEEL DIAPHRAGM TO GIRDER WEB CONNECTION.



BOTTOM FLANGE





NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECT. 503.3.3 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR *4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

AN EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON ACCEPTANCE OF THE STRUCTURES MAINTENANCE SECTION. IF USED, WWF SUBSTITUTION DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE WISDOT FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMITTAL.

PRESTRESSING STRANDS SHALL BE (0.6" DIA.)-7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGM" SHEET.

✳ MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

GIRDER DATA

SPAN	GIRDER	GIRDER LENGTH "L" (FEET)	DEAD LOAD DEFL. (IN.)									CONC. STRGTH. f'c (P.S.I.)	"P" (IN.)			DIA. OF STRAND (IN.)	DRAPED PATTERN						UNDRAPED PATTERN	
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10		1ST 1/3 OF GIRDER	MID 1/3 OF GIRDER	END 1/3 OF GIRDER		TOTAL NO. OF STRANDS	f'ci (P.S.I.) ✳	(IN.) "A"	"B" MIN.	"B" MAX.	"C"	TOTAL NO. OF STRANDS	f'ci (P.S.I.) ✳
1	1-8	68.38'	0.3	0.6	0.8	0.9	0.9	0.9	0.8	0.6	0.3	8,000	7	8	8	0.6	20	6,400	32	11	14	4		
2	1-8	83.37'	0.7	1.3	1.8	2.1	2.2	2.1	1.8	1.3	0.7	8,000	8	8	8	0.6	32	6,400	31	11.5	14.5	5		

8

8

10/5/20

NO.	DATE	REVISION	BY
1	10-5-20	REMOVE ANGLE & BEARING PLATE	DDS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-793 ⚠

DRAWN BY DDS | PLANS CK'D. JJS

36W" PRESTRESSED GIRDER DETAILS

SHEET 12

1744

SCALE = 1.00

Division 2 (RL-NO - North Ave EB)

STATION	Real Station	Distance	AREA (SF) Cut	Salvaged/ Unusable Pavement Material	Fill	EBS	Incremental Vol (CY) (Unadjusted) Cut Note 1	Salvaged/ Unusable Pavement Material Note 2	Fill Note 3	EBS	Cumulative Vol (CY) Cut 1.0 Note 1	Expanded Fill 1.1 Note 4	Expanded EBS Backfill 1.3	Reduced EBS In Fill 0.8	Mass Ordinate
100+50	10050	50	123	0	0	0	114	0	0	0	114	0	0	0	113
101+00	10100	50	115	0	0	0	220	0	0	0	334	1	0	0	333
101+50	10150	50	118	0	0	0	216	0	0	0	549	1	0	0	549
102+00	10200	50	142	0	0	0	241	0	0	0	790	1	0	0	789
102+37	10237	37	151	0	0	0	201	0	0	0	991	1	0	0	990
102+50	10250	13	148	0	0	0	72	0	0	0	1,063	1	0	0	1,062
103+00	10300	50	144	0	0	0	270	0	0	0	1,333	1	0	0	1,332
103+50	10350	50	311	0	0	0	422	0	0	0	1,755	1	0	0	1,754
104+00	10400	50	111	0	0	0	391	0	0	0	2,146	2	0	0	2,144
104+50	10450	50	112	0	0	0	207	0	1	0	2,353	3	0	0	2,351
105+00	10500	50	118	0	0	0	214	0	0	0	2,567	3	0	0	2,564
105+50	10550	50	130	0	0	0	230	0	0	0	2,797	3	0	0	2,794
106+00	10600	50	161	0	4	0	269	0	4	0	3,066	7	0	0	3,059
106+50	10650	50	84	0	0	0	227	0	4	0	3,293	11	0	0	3,282
107+00	10700	50	96	0	0	0	167	0	0	0	3,460	11	0	0	3,449
107+50	10750	50	149	0	0	0	227	0	0	0	3,687	11	0	0	3,676
108+00	10800	50	108	0	0	0	238	0	0	0	3,925	11	0	0	3,914
108+50	10850	50	142	0	0	0	231	0	0	0	4,156	11	0	0	4,145
109+00	10900	50	131	0	0	0	252	0	0	0	4,408	11	0	0	4,397
109+50	10950	50	460	0	0	0	547	0	0	0	4,955	11	0	0	4,944
110+00	11000	50	302	0	0	0	705	0	0	0	5,661	11	0	0	5,649
110+50	11050	50	327	0	0	0	582	0	0	0	6,243	11	0	0	6,231
111+00	11100	50	364	0	0	0	640	0	0	0	6,883	11	0	0	6,872
111+50	11150	50	386	0	0	0	695	0	0	0	7,578	11	0	0	7,567
112+00	11200	50	401	0	0	0	729	0	0	0	8,307	11	0	0	8,295

4

Addendum No. 04
ID 1060-33-84
Revised Sheet 2491
October 6, 2020

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 Fill	Expanded Fill Factor- 1.10 Expanded Fill= Unexpanded Fill * Fill Factor
	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.

9

9

PROJECT NO: 1060-33-84	HWY: IH -41	COUNTY: MILWAUKEE	EARTHWORK	SHEET: 2491	E

FILE NAME : _____ PLOT DATE : _____ PLOT BY : _____ PLOT NAME : _____ PLOT SCALE : 1:1

Division 2 (RL-NO - North Ave EB)

112+50	11250	50	409	0	0	0	750	0	0	0	9,057	11	0	0	9,045
113+00	11300	50	460	0	0	0	805	0	0	0	9,862	11	0	0	9,850
113+50	11350	50	507	0	0	0	895	0	0	0	10,757	11	0	0	10,745
114+00	11400	50	531	0	0	0	961	0	0	0	11,718	11	0	0	11,706
114+50	11450	50	434	0	0	0	894	0	0	0	12,611	11	0	0	12,600
115+00	11500	50	388	0	0	0	762	0	0	0	13,373	11	0	0	13,361
115+50	11550	50	336	0	0	0	671	0	0	0	14,043	11	0	0	14,032
116+00	11600	50	283	0	0	0	573	0	0	0	14,616	11	0	0	14,605
116+50	11650	50	237	0	0	0	481	0	0	0	15,098	11	0	0	15,086
116+82	11682	32	220	0	0	0	271	0	0	0	15,369	11	0	0	15,358
117+00	11700	18	353	0	0	0	191	0	0	0	15,560	11	0	0	15,549
117+50	11750	50	136	0	0	0	453	0	0	0	16,013	11	0	0	16,001
118+00	11800	50	107	0	2	0	225	0	1	0	16,238	13	0	0	16,225
118+50	11850	50	87	0	3	0	180	0	4	0	16,418	17	0	0	16,401
119+00	11900	50	89	0	3	0	163	0	5	0	16,582	23	0	0	16,559
119+50	11950	50	107	0	1	0	182	0	3	0	16,764	26	0	0	16,737
120+00	12000	50	112	0	0	0	203	0	1	0	16,967	28	0	0	16,939
120+50	12050	50	0	0	0	0	104	0	0	0	17,071	28	0	0	17,042
					Column totals		17,071	0	26	0					

3

Addendum No. 04
ID 1060-33-84
Revised Sheet 2492
October 6, 2020

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 Fill	Expanded Fill Factor- 1.10 Expanded Fill= Unexpanded Fill * Fill Factor
	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.

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0112	204.9060.S Removing (item description) 1007. Removing Poles Wood 35-FT and Floodlight	3.000 EACH	_____._____	_____._____
0114	204.9060.S Removing (item description) 1008. Removing Underdeck Lighting	5.000 EACH	_____._____	_____._____
0116	204.9060.S Removing (item description) 1009. Removing Luminaries Underdeck Lighting	4.000 EACH	_____._____	_____._____
0118	204.9090.S Removing (item description) 0005. Removing Temporary Precast Trench Drain	2,355.000 LF	_____._____	_____._____
0120	204.9090.S Removing (item description) 0006. Removing Drain Slotted Vane	678.000 LF	_____._____	_____._____
0122	204.9090.S Removing (item description) 0100. Removing Sheet Pile Shoring	400.000 LF	_____._____	_____._____
0124	204.9105.S Removing (item description) 3001. Temporary Traffic Signal IH 41 SB on Ramp & W. North Avenue	LS	LUMP SUM	_____._____
0126	204.9105.S Removing (item description) 3002. Temporary Traffic Signals IH 41 NB on Ramp & W. North Avenue	LS	LUMP SUM	_____._____
0128	204.9105.S Removing (item description) 3101. Traffic Signals W. North Avenue & N. 116th Street	LS	LUMP SUM	_____._____
0130	205.0100 Excavation Common	441,725.000 CY	_____._____	_____._____
0132	205.0501.S Excavation, Hauling, and Disposal of Petroleum Contaminated Soil	11,992.000 TON	_____._____	_____._____
0134	206.1000 Excavation for Structures Bridges (structure) 0001. B-40-138	LS	LUMP SUM	_____._____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0162	206.3000 Excavation for Structures Retaining Walls (structure) 0008. R-40-561	LS	LUMP SUM	_____.____
0164	206.3000 Excavation for Structures Retaining Walls (structure) 0009. R-40-564	LS	LUMP SUM	_____.____
0166	209.1100 Backfill Granular Grade 1	11,768.000 CY	_____.____	_____.____
0168	210.1100 Backfill Structure Type A	95.000 CY	_____.____	_____.____
0170	210.1500 Backfill Structure Type A	18,214.000 TON	_____.____	_____.____
0172	213.0100 Finishing Roadway (project) 0001. 1060-33-84	1.000 EACH	_____.____	_____.____
0174	305.0120 Base Aggregate Dense 1 1/4-Inch	140,945.000 TON	_____.____	_____.____
0176	310.0110 Base Aggregate Open-Graded	1,140.000 TON	_____.____	_____.____
0178	312.0110 Select Crushed Material	239,657.000 TON	_____.____	_____.____
0180	320.0155 Concrete Base 9-Inch	710.000 SY	_____.____	_____.____
0182	390.0403 Base Patching Concrete Shes	3,900.000 SY	_____.____	_____.____
0184	415.0410 Concrete Pavement Approach Slab	2,056.000 SY	_____.____	_____.____
0186	415.1410 Concrete Pavement Approach Slab HES	55.000 SY	_____.____	_____.____
0188	415.5110.S Concrete Pavement Joint Layout	1.000 LS	_____.____	_____.____
0190	416.0270 Concrete Driveway HES 7-Inch	1,357.000 SY	_____.____	_____.____
0192	416.0610 Drilled Tie Bars	2,982.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0194	416.0620 Drilled Dowel Bars	8,349.000 EACH	_____.____	_____.____
0196	416.1715 Concrete Pavement Repair SHES	2,080.000 SY	_____.____	_____.____
0198	416.1725 Concrete Pavement Replacement SHES	3,300.000 SY	_____.____	_____.____
0200	455.0605 Tack Coat	16,104.000 GAL	_____.____	_____.____
0202	460.2000 Incentive Density HMA Pavement	14,208.000 DOL	1.00000	14,208.00
0204	460.5223 HMA Pavement 3 LT 58-28 S	1,120.000 TON	_____.____	_____.____
0206	460.5224 HMA Pavement 4 LT 58-28 S	1,438.000 TON	_____.____	_____.____
0208	460.5225 HMA Pavement 5 LT 58-28 S	107.000 TON	_____.____	_____.____
0210	460.6223 HMA Pavement 3 MT 58-28 S	6,294.000 TON	_____.____	_____.____
0212	460.6224 HMA Pavement 4 MT 58-28 S	11,031.000 TON	_____.____	_____.____
0214	460.7424 HMA Pavement 4 HT 58-28 H	3,592.000 TON	_____.____	_____.____
0216	465.0120 Asphaltic Surface Driveways and Field Entrances	1,211.000 TON	_____.____	_____.____
0218	465.0125 Asphaltic Surface Temporary	29,225.000 TON	_____.____	_____.____
0220	495.1000.S Cold patch	50.000 TON	_____.____	_____.____
0222	501.1000.S Ice Hot Weather Concreting	210,021.000 LB	_____.____	_____.____
0224	502.0100 Concrete Masonry Bridges	8,215.000 CY	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0556	603.3675 Concrete Barrier Transition Type V51 to S42	2.000 EACH	_____.____	_____.____
0558	603.8000 Concrete Barrier Temporary Precast Delivered	88,029.000 LF	_____.____	_____.____
0560	603.8125 Concrete Barrier Temporary Precast Installed	139,219.000 LF	_____.____	_____.____
0562	604.0400 Slope Paving Concrete	356.000 SY	_____.____	_____.____
0564	604.0500 Slope Paving Crushed Aggregate	139.000 SY	_____.____	_____.____
0566	606.0100 Riprap Light	356.000 CY	_____.____	_____.____
0568	606.0200 Riprap Medium	1,875.000 CY	_____.____	_____.____
0570	608.0312 Storm Sewer Pipe Reinforced Concrete Class III 12-Inch	5,872.000 LF	_____.____	_____.____
0572	608.0315 Storm Sewer Pipe Reinforced Concrete Class III 15-Inch	2,216.000 LF	_____.____	_____.____
0574	608.0318 Storm Sewer Pipe Reinforced Concrete Class III 18-Inch	1,541.000 LF	_____.____	_____.____
0576	608.0321 Storm Sewer Pipe Reinforced Concrete Class III 21-Inch	11.000 LF	_____.____	_____.____
0578	608.0324 Storm Sewer Pipe Reinforced Concrete Class III 24-Inch	15,224.000 LF	_____.____	_____.____
0580	608.0330 Storm Sewer Pipe Reinforced Concrete Class III 30-Inch	2,494.000 LF	_____.____	_____.____
0582	608.0336 Storm Sewer Pipe Reinforced Concrete Class III 36-Inch	1,119.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0672	612.0106 Pipe Underdrain 6-Inch	734.000 LF	_____.____	_____.____
0674	612.0206 Pipe Underdrain Unperforated 6-Inch	387.000 LF	_____.____	_____.____
0676	612.0406 Pipe Underdrain Wrapped 6-Inch	6,790.000 LF	_____.____	_____.____
0678	612.0806 Apron Endwalls for Underdrain Reinforced Concrete 6-Inch	3.000 EACH	_____.____	_____.____
0680	614.0150 Anchor Assemblies for Steel Plate Beam Guard	2.000 EACH	_____.____	_____.____
0682	614.0805 Crash Cushions Permanent Low Maintenance	7.000 EACH	_____.____	_____.____
0684	614.0905 Crash Cushions Temporary	4.000 EACH	_____.____	_____.____
0686	614.0950 Replacing Guardrail Posts and Blocks	30.000 EACH	_____.____	_____.____
0688	614.0951 Replacing Guardrail Rail and Hardware	300.000 LF	_____.____	_____.____
0690	614.2300 MGS Guardrail 3	98.000 LF	_____.____	_____.____
0692	614.2500 MGS Thrie Beam Transition	160.000 LF	_____.____	_____.____
0694	614.2610 MGS Guardrail Terminal EAT	4.000 EACH	_____.____	_____.____
0696	614.2620 MGS Guardrail Terminal Type 2	2.000 EACH	_____.____	_____.____
0698	616.0206 Fence Chain Link 6-FT	8,040.000 LF	_____.____	_____.____
0700	616.0329 Gates Chain Link (width) 0001. 12-FT	7.000 EACH	_____.____	_____.____
0702	616.0700.S Fence Safety	5,000.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1220	678.0500 Communication System Testing 3001. W. North Avenue Interconnect	LS	LUMP SUM	_____.____
1222	678.0600 Install Ethernet Switches	9.000 EACH	_____.____	_____.____
1224	690.0150 Sawing Asphalt	3,220.000 LF	_____.____	_____.____
1226	690.0250 Sawing Concrete	56,762.000 LF	_____.____	_____.____
1228	715.0415 Incentive Strength Concrete Pavement	135,340.000 DOL	1.00000	135,340.00
1230	715.0502 Incentive Strength Concrete Structures	22,000.000 DOL	1.00000	22,000.00
1232	715.0603 Incentive Strength Concrete Barrier	28,000.000 DOL	1.00000	28,000.00
1234	740.0440 Incentive IRI Ride	42,765.000 DOL	1.00000	42,765.00
1236	801.0117 Railroad Flagging Reimbursement	800,000.000 DOL	1.00000	800,000.00
1238	ASP.1T0A On-the-Job Training Apprentice at $5.00/HR	11,000.000 HRS	5.00000	55,000.00
1240	ASP.1T0G On-the-Job Training Graduate at $5.00/HR	20,700.000 HRS	5.00000	103,500.00
1242	SPV.0035 Special 0001. EBS Excavation	70,523.000 CY	_____.____	_____.____
1244	SPV.0035 Special 0002. EBS Backfill	70,523.000 CY	_____.____	_____.____
1246	SPV.0035 Special 0003. Excavation, Hauling, and Reuse of Low-Level Contaminated Soil	9,360.000 CY	_____.____	_____.____
1248	SPV.0035 Special 0800. Backfill Controlled Low Strength UPRR	250.000 CY	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1544	SPV.0075 Special 4055. Obstructions Foundation Drilling	45.000 HRS	_____.____	_____.____
1546	SPV.0075 Special 5100. Obstructions Trenchless Utility Construction	24.000 HRS	_____.____	_____.____
1548	SPV.0090 Special 0001. Removing Concrete Barrier Precast	4,694.000 LF	_____.____	_____.____
1550	SPV.0090 Special 0002. Maintain and Remove Concrete Barrier Temporary Precast	7,930.000 LF	_____.____	_____.____
1552	SPV.0090 Special 0003. Removing Modular Block Retaining Wall	245.000 LF	_____.____	_____.____
1556	SPV.0090 Special 0101. Concrete Curb & Gutter 31-Inch Integral	861.000 LF	_____.____	_____.____
1558	SPV.0090 Special 0102. Concrete Gutter 42-Inch	130.000 LF	_____.____	_____.____
1560	SPV.0090 Special 0103. Concrete Gutter 66-Inch	71.000 LF	_____.____	_____.____
1562	SPV.0090 Special 0105. Concrete Barrier Type S42C Special	5,276.000 LF	_____.____	_____.____
1564	SPV.0090 Special 0110. Galvanized Pipe Railing	9.000 LF	_____.____	_____.____
1566	SPV.0090 Special 0126. Pipe Underdrain 6-Inch Special	46,965.000 LF	_____.____	_____.____
1568	SPV.0090 Special 0127. Pipe Underdrain 10-Inch Special	165.000 LF	_____.____	_____.____
1570	SPV.0090 Special 0301. Heavy Duty Silt Fence	3,114.000 LF	_____.____	_____.____
1572	SPV.0090 Special 0400. Marking Contrast Epoxy 4-Inch	9,757.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1574	SPV.0090 Special 0401. Marking Contrast Epoxy 8-Inch	8,895.000 LF	_____.____	_____.____
1576	SPV.0090 Special 0405. Remove Pavement Marking 12-Inch	96.000 LF	_____.____	_____.____
1578	SPV.0090 Special 0410. Remove Grooved In Pavement Marking Thermoplastic Stop Bar	438.000 LF	_____.____	_____.____
1580	SPV.0090 Special 0414. Remove Pavement Marking Grooved Tape 4-Inch	1,379.000 LF	_____.____	_____.____
1582	SPV.0090 Special 0415. Remove Pavement Marking Grooved Tape 8-Inch	1,868.000 LF	_____.____	_____.____
1584	SPV.0090 Special 0600. Salvage Temporary Precast Concrete Barrier Left in Place	1,400.000 LF	_____.____	_____.____
1586	SPV.0090 Special 0800. Remove and Dispose of UPRR Track	6,142.000 LF	_____.____	_____.____
1588	SPV.0090 Special 0805. Construct 136LB ISHH CWR on Wood Ties	6,159.000 LF	_____.____	_____.____
1590	SPV.0090 Special 0810. Construct Double Inside Guard Rail	660.000 LF	_____.____	_____.____
1592	SPV.0090 Special 0900. Fence Temporary 6-FT	8,775.000 LF	_____.____	_____.____
1594	SPV.0090 Special 0910. Glare Screens Temporary	11,450.000 LF	_____.____	_____.____
1596	SPV.0090 Special 0920. Concrete Barrier Temporary Precast Anchoring	2,400.000 LF	_____.____	_____.____
1598	SPV.0090 Special 0925. Concrete Barrier Temporary Precast Anchored on Bridge	3,200.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1600	SPV.0090 Special 1001. Cable Aerial Aluminum 6 AWG Triplex	1,100.000 LF	_____.____	_____.____
1602	SPV.0090 Special 1002. Cable Aerial Aluminum 4 AWG Triplex	5,470.000 LF	_____.____	_____.____
1604	SPV.0090 Special 1003. Cable Aerial Aluminum 2 AWG Triplex	1,930.000 LF	_____.____	_____.____
1606	SPV.0090 Special 4008. Piling Steel HP 14-Inch X 89LB	1,500.000 LF	_____.____	_____.____
1608	SPV.0090 Special 4009. Piling Steel HP 14-Inch x 117 LB	1,500.000 LF	_____.____	_____.____
1610	SPV.0090 Special 4028. Drilled Foundation Shaft 59.06-Inch	211.000 LF	_____.____	_____.____
1612	SPV.0090 Special 4035. Foundation Drilling	14,370.000 LF	_____.____	_____.____
1614	SPV.0090 Special 4048. Wall Secant Pile 59.06-Inch	4,520.000 LF	_____.____	_____.____
1616	SPV.0090 Special 4050. Wall Tangent Pile 36-Inch	11,900.000 LF	_____.____	_____.____
1618	SPV.0090 Special 4068. Handrail B-40-878	295.000 LF	_____.____	_____.____
1620	SPV.0090 Special 4069. Handrail R-40-622	325.000 LF	_____.____	_____.____
1622	SPV.0090 Special 4088. Handrail Temporary	836.000 LF	_____.____	_____.____
1624	SPV.0090 Special 4100. Fence Decorative Bridge	560.000 LF	_____.____	_____.____
1626	SPV.0090 Special 4105. Fence Decorative Wall	1,929.000 LF	_____.____	_____.____
1628	SPV.0090 Special 4200. Removing Existing Steel Piling	1,005.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1630	SPV.0090 Special 4205. Removing Existing Timber Piling	255.000 LF	_____.____	_____.____
1632	SPV.0090 Special 5001. Removing Concrete Encased Duct Package	1,543.000 LF	_____.____	_____.____
1634	SPV.0090 Special 5002. Removing Concrete Encased 21-Inch Sewer	231.000 LF	_____.____	_____.____
1636	SPV.0090 Special 5101. Sanitary Sewer 8-Inch PVC	546.000 LF	_____.____	_____.____
1638	SPV.0090 Special 5102. Sanitary Sewer 10-Inch PVC	701.000 LF	_____.____	_____.____
1640	SPV.0090 Special 5103. Sanitary Sewer 21-Inch PVC	410.000 LF	_____.____	_____.____
1642	SPV.0090 Special 5104. Steel Casing W/ Sanitary Sewer 10-Inch PVC Carrier	317.000 LF	_____.____	_____.____
1644	SPV.0090 Special 5105. Abandoning Sanitary Sewer 8-Inch	1,723.000 LF	_____.____	_____.____
1646	SPV.0090 Special 5106. Abandoning Sanitary Sewer 18-Inch	30.000 LF	_____.____	_____.____
1648	SPV.0090 Special 5107. Abandoning Sanitary Sewer 21-Inch	1,052.000 LF	_____.____	_____.____
1650	SPV.0090 Special 5225. Ductile Iron (DI) AWWA C-151 Class 55 Water Main 6-Inch	53.000 LF	_____.____	_____.____
1652	SPV.0090 Special 5226. Ductile Iron (DI) AWWA C-151 Class 55 Water Main 8-Inch	3,341.000 LF	_____.____	_____.____
1654	SPV.0090 Special 5227. Ductile Iron (DI) AWWA C-151 Class 55 Water Main 12-Inch	132.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1656	SPV.0090 Special 5228. Ductile Iron (DI) AWWA C-151 Class 55 Water Main 16-Inch	2,050.000 LF	_____._____	_____._____
1658	SPV.0090 Special 5229. Ductile Iron (DI) AWWA C-151 Class 55 Water Main 24-Inch	351.000 LF	_____._____	_____._____
1660	SPV.0090 Special 5239. Removing Water Main	44.000 LF	_____._____	_____._____
1662	SPV.0090 Special 5250. Abandon Existing 6-Inch Water Main	2,125.000 LF	_____._____	_____._____
1664	SPV.0090 Special 5251. Abandon Existing 8-Inch Water Main	436.000 LF	_____._____	_____._____
1666	SPV.0090 Special 5252. Abandon Existing 12-Inch Water Main	469.000 LF	_____._____	_____._____
1668	SPV.0090 Special 5253. Abandon Existing 16-Inch Water Main	687.000 LF	_____._____	_____._____
1670	SPV.0090 Special 8025. Pipe Underdrain Exploration	100.000 LF	_____._____	_____._____
1672	SPV.0090 Special 8026. Storm Sewer Lateral Exploration	100.000 LF	_____._____	_____._____
1674	SPV.0090 Special 8031. Precast Trench Drain	1,541.000 LF	_____._____	_____._____
1676	SPV.0090 Special 8036. Temporary Precast Trench Drain	2,355.000 LF	_____._____	_____._____
1678	SPV.0105 Special 0604. Survey Project 1060-33-84	LS	LUMP SUM	_____._____
1680	SPV.0105 Special 0605. Survey Project 1060-34-77	LS	LUMP SUM	_____._____
1682	SPV.0105 Special 1001. Maintenance of Lighting Systems	LS	LUMP SUM	_____._____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1684	SPV.0105 Special 1002. Lighting System Integrator	LS	LUMP SUM	_____.____
1686	SPV.0105 Special 1003. Lighting System Survey	LS	LUMP SUM	_____.____
1688	SPV.0105 Special 3001. Trans and Inst State Furn Traffic Signal Cab IH 41 SB Ramps & W. North Ave	LS	LUMP SUM	_____.____
1690	SPV.0105 Special 3002. Transport & Inst State Furn Traffic Sig Cab IH 41 NB on Ramp & W North Ave	LS	LUMP SUM	_____.____
1692	SPV.0105 Special 3003. Trans & Inst State Furn Emer Vehicle Preemp (EVP) Dete Heads W/ Con Beacon	LS	LUMP SUM	_____.____
1694	SPV.0105 Special 3004. Trans & Inst State Furn Emer Vehicle Preemp (EVP) Dete Heads W/ Con Beacon	LS	LUMP SUM	_____.____
1696	SPV.0105 Special 3005. Trans and Inst State Furn FO Cable PT 8-CT IH 41 SB on Ramp & W. North Ave	LS	LUMP SUM	_____.____
1698	SPV.0105 Special 3006. Trans and Inst State Furn FO Cable PT 8-CT IH 41 NB on Ramp & W. North Ave	LS	LUMP SUM	_____.____
1700	SPV.0105 Special 3101. Transport and Install State Furnished Municipal Traffic Signal Cabinet	LS	LUMP SUM	_____.____
1702	SPV.0105 Special 3102. Video Vehicle Detection System	LS	LUMP SUM	_____.____
1704	SPV.0105 Special 4008. Trial Wall Panel Secant Pile 59.06-Inch	LS	LUMP SUM	_____.____
1706	SPV.0105 Special 4010. Trial Wall Panel Tangent Pile 36-Inch	LS	LUMP SUM	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1708	SPV.0105 Special 4015. Track, Shoring, and Existing Structure Monitoring UPRR	LS	LUMP SUM	_____.____
1710	SPV.0105 Special 5245. Control of Water	LS	LUMP SUM	_____.____
1712	SPV.0105 Special 6001. Rectangular Rapid Flash Beacon (RRFB) System Station 730+00 NOG Right	LS	LUMP SUM	_____.____
1714	SPV.0105 Special 6002. Rectangular Rapid Flash Beacon (RRFB) System Station 734+00 NOB Right	LS	LUMP SUM	_____.____
1716	SPV.0105 Special 6003. Rectangular Rapid Flash Beacon (RRFB) System Station 734+00 NOB Left	LS	LUMP SUM	_____.____
1718	SPV.0105 Special 6004. Rectangular Rapid Flash Beacon (RRFB) System Station 726+00 NOB Right	LS	LUMP SUM	_____.____
1720	SPV.0105 Special 6005. Rectangular Rapid Flash Beacon (RRFB) System Station 725+50 NOG Right	LS	LUMP SUM	_____.____
1722	SPV.0105 Special 6006. Rectangular Rapid Flash Beacon (RRFB) System Station 725+50 NOG Left	LS	LUMP SUM	_____.____
1724	SPV.0105 Special 6007. Rectangular Rapid Flash Beacon (RRFB) System Station 732+00 NOA Right	LS	LUMP SUM	_____.____
1726	SPV.0105 Special 6008. Rectangular Rapid Flash Beacon (RRFB) System Station 732+00 NOA Left	LS	LUMP SUM	_____.____
1728	SPV.0105 Special 6009. Rectangular Rapid Flash Beacon (RRFB) System Station 122+50NO Right	LS	LUMP SUM	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1730	SPV.0105 Special 6010. Rectangular Rapid Flash Beacon (RRFB) System Station 738+00 NOC Right	LS	LUMP SUM	_____.____
1732	SPV.0105 Special 6011. Rectangular Rapid Flash Beacon (RRFB) System Station 738+00 NOC Left	LS	LUMP SUM	_____.____
1734	SPV.0105 Special 6020. Chevron Solar Powered Sign System Assembly Ramp MA	LS	LUMP SUM	_____.____
1736	SPV.0105 Special 6021. Chevron Solar Powered Sign System Assembly Ramp NOB	LS	LUMP SUM	_____.____
1738	SPV.0105 Special 6022. Chevron Solar Powered Sign System Assembly Ramp NOG	LS	LUMP SUM	_____.____
1740	SPV.0105 Special 8098. Control of Water Storm Sewer	LS	LUMP SUM	_____.____
1742	SPV.0110 Special 4001. Timber Lagging	149.000 MBM	_____.____	_____.____
1744	SPV.0135 Special 0100. Field Office Special	45.000 MON	_____.____	_____.____
1746	SPV.0135 Special 0601. Vibration Monitoring	32.000 MON	_____.____	_____.____
1748	SPV.0165 Special 4005. Temporary Wall Wire Faced Mechanically Stabilized Earth	4,270.000 SF	_____.____	_____.____
1750	SPV.0165 Special 4010. Prestressed Precast Concrete Wall Panel R-40-567	21,770.000 SF	_____.____	_____.____
1752	SPV.0165 Special 4015. Geocomposite Drain Board	43,930.000 SF	_____.____	_____.____
1754	SPV.0165 Special 4020. Concrete Staining Previously Constructed Structure	54,455.000 SF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1756	SPV.0165 Special 4028. Temporary Shoring Railroad Type A	5,886.000 SF	_____.____	_____.____
1758	SPV.0165 Special 4048. Temporary Shoring Railroad Type B	120.000 SF	_____.____	_____.____
1760	SPV.0165 Special 4060. Temporary Shoring Railroad Type CP	330.000 SF	_____.____	_____.____
1762	SPV.0165 Special 4069. Precast Concrete Modular Retaining Wall	3,340.000 SF	_____.____	_____.____
1764	SPV.0165 Special 4088. Precast Concrete Modular Wingwall	749.000 SF	_____.____	_____.____
1766	SPV.0165 Special 4090. Geocomposite Wall Drain	1,120.000 SF	_____.____	_____.____
1768	SPV.0165 Special 4100. Wall Concrete Panel Mechanically Stabilized Earth R-40-561	9,290.000 SF	_____.____	_____.____
1770	SPV.0165 Special 4101. Wall Concrete Panel Mechanically Stabilized Earth R-40-564	5,013.000 SF	_____.____	_____.____
1772	SPV.0165 Special 4102. Wall Concrete Panel Mechanically Stabilized Earth R-40-568	1,075.000 SF	_____.____	_____.____
1774	SPV.0165 Special 4103. Wall Concrete Panel Mechanically Stabilized Earth R-40-569	4,295.000 SF	_____.____	_____.____
1776	SPV.0165 Special 4104. Wall Concrete Panel Mechanically Stabilized Earth R-40-570	13,240.000 SF	_____.____	_____.____
1778	SPV.0165 Special 4105. Wall Concrete Panel Mechanically Stabilized Earth R-40-572	1,142.000 SF	_____.____	_____.____
1780	SPV.0165 Special 4106. Wall Concrete Panel Mechanically Stabilized Earth R-40-632	2,640.000 SF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1782	SPV.0165 Special 4107. Wall Concrete Panel Mechanically Stabilized Earth R-40-635	2,846.000 SF	_____.____	_____.____
1784	SPV.0180 Special 0101. Concrete Pavement 12-Inch Special	158,172.000 SY	_____.____	_____.____
1786	SPV.0180 Special 0102. Concrete Pavement HES 12-Inch Special	1,701.000 SY	_____.____	_____.____
1788	SPV.0180 Special 0103. Concrete Pavement 10-Inch Special	35,206.000 SY	_____.____	_____.____
1790	SPV.0180 Special 0105. Resin Binder High Friction Surface Treatment	2,757.000 SY	_____.____	_____.____
1792	SPV.0180 Special 0110. Pesticide Application	43,200.000 SY	_____.____	_____.____
1794	SPV.0180 Special 0301. Topsoil Special	176,099.000 SY	_____.____	_____.____
1796	SPV.0180 Special 0601. Soil Drying	68,000.000 SY	_____.____	_____.____
1798	SPV.0180 Special 0603. Concrete Pavement Repair Special	85.000 SY	_____.____	_____.____
1800	SPV.0180 Special 0604. Asphaltic Material Binder	8,074.000 SY	_____.____	_____.____
1802	SPV.0180 Special 4008. Membrane Waterproofing	2,050.000 SY	_____.____	_____.____
1804	SPV.0180 Special 4048. Asphalt Panels	3,617.000 SY	_____.____	_____.____
1806	SPV.0195 Special 0001. Fly Ash Stabilization	4,290.000 TON	_____.____	_____.____
1808	SPV.0195 Special 0002. Riprap Reach D Stone	2,000.000 TON	_____.____	_____.____
1810	SPV.0195 Special 0004. Excavation, Hauling, and Disposal of Low-Level Contaminated Soil	20,516.000 TON	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1812	SPV.0195 Special 0010. Base Aggregate Dense 1 1/4-Inch Restoration	4,700.000 TON	_____.____	_____.____
1814	SPV.0195 Special 0015. Stone No. 2 Special	640.000 TON	_____.____	_____.____
1816	SPV.0195 Special 0020. HMA Longitudinal Joint Repair	500.000 TON	_____.____	_____.____
1818	SPV.0195 Special 0601. Soil Drying Agent	1,500.000 TON	_____.____	_____.____
1820	SPV.0195 Special 4008. Base Aggregate Open Graded Special	9,530.000 TON	_____.____	_____.____
1822	SPV.0195 Special 4029. Backfill Modular Retaining Wall	2,900.000 TON	_____.____	_____.____
1824	SPV.0195 Special 5001. Removing Wood Poles UPRR	6.000 TON	_____.____	_____.____
1826	SPV.0035 Special 0004. Clay Cap	6,300.000 CY	_____.____	_____.____
1828	SPV.0060 Special 1010. Lighting Pull Boxes Wauwatosa 17-Inch x 30-Inch	12.000 EACH	_____.____	_____.____
1830	SPV.0060 Special 1011. Lighting Pull Boxes Wauwatosa 24-Inch x 36-Inch	2.000 EACH	_____.____	_____.____
1832	SPV.0060 Special 1012. 23-FT Standard Concrete Light Poles and Arms	13.000 EACH	_____.____	_____.____
1834	SPV.0060 Special 1013. Lighting Control Cabinet 240/480 - Wauwatosa	2.000 EACH	_____.____	_____.____
1836	SPV.0060 Special 1014. Luminaires Utility LED A (30K)	16.000 EACH	_____.____	_____.____
1838	SPV.0060 Special 1015. Luminaires Utility LED C (30K)	19.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1840	SPV.0090 Special 1004. Polyethylene Duct 1 1/4-Inch	950.000 LF	_____.____	_____.____
1842	450.4000 HMA Cold Weather Paving	25,312.000 TON	_____.____	_____.____
1844	SPV.0060 Special 0170. Temporary Access Gates at CPRR	4.000 EACH	_____.____	_____.____
1846	SPV.0060 Special 0171. Temporary Crossing at CPRR	2.000 EACH	_____.____	_____.____
1848	SPV.0060 Special 0960. Crash Cushions Temporary Low Maintenance	22.000 EACH	_____.____	_____.____

Section: 0001 Total: _____.____

Total Bid: _____.____

Wisconsin Department of Transportation

Division of Transportation Systems Development
Bureau of Project Development
4822 Madison Yards Way, 4th Floor South
Madison, WI 53705

Telephone: (608) 266-1631
Facsimile (FAX): (608) 266-8459

October 8, 2020

NOTICE TO ALL CONTRACTORS:

Proposal #01:

1060-33-84, WISC 2020 466
Zoo IC, USH 45
Swan Blvd to Burleigh Street
USH 45
Milwaukee County

1060-34-77
Zoo IC, North Avenue
118th Street to 116th Street
Loc Str
Milwaukee County

1100-18-73, WISC 2021 001
Zoo IC, Polymer Overlays
Zoo IC Mainline Bridges
Var Hwy
Milwaukee County

1100-18-76, WISC 2002 467
Zoo I/C Overpasses
Various Locations
Var Hwy
Milwaukee County

Letting of October 13, 2020

This is Addendum No. 05, which provides for the following:

Special Provisions:

Revised Special Provisions	
Article No.	Description
302	Precast Trench Drain, Item SPV.0090.8031; Temporary Precast Trench Drain, Item SPV.0090.8036.

Added Special Provisions	
Article No.	Description
359	Remove Pavement Marking 24-Inch, Item SPV.0090.0406

Schedule of Items:

Revised Bid Item Quantities					
Bid Item	Item Description	Unit	Old Quantity	Revised Quantity	Proposal Total
502.0110.S	Concrete Masonry Solider Pile Footings	CY	1,702	39	1,741
506.0105	Structural Steel Carbon	LB	25,381	30,118	55,499
506.0605	Structural Steel HS	LB	4,902,267	63,750	4,966,017
646.9010	Marking Removal Line Water Blasting 4-Inch	LF	88,274	11,525	99,799
SPV.0060.0405	Remove Grooved In Pavement Marking Thermoplastic Arrows and Words	EACH	39	3	42
SPV.0090.0405	Remove Pavement Marking 12-Inch	LF	96	1,324	1,420
SPV.0090.0414	Remove Pavement Marking Grooved Contrast Tape 4-Inch	LF	1,379	2,288	3,667
SPV.0090.0415	Remove Pavement Marking Grooved Contrast Tape 8-Inch	LF	1,868	1,340	3,208
SPV.0090.4035	Foundation Drilling	LF	14,370	205	14,575

Added Bid Item Quantities					
Bid Item	Item Description	Unit	Old Quantity	Revised Quantity	Proposal Total
SPV.0090.0406	Remove Pavement Marking 24-Inch	LF	0	39	39

Plan Sheets:

Project ID 1060-33-84

Revised Plan Sheets	
Plan Sheet	Plan Sheet Title (brief description of changes to sheet)
1984	B-40-878. See revised plans
2302	R-40-567. See revised plans
2303	R-40-573. See revised plans
2304	R-40-573. See revised plans
2305	R-40-573. See revised plans
2307	R-40-573. See revised plans
2309	R-40-573. See revised plans
2311	R-40-573. See revised plans
2312	R-40-573. See revised plans
2313	R-40-573. See revised plans
2315	R-40-573. See revised plans
2316	R-40-573. See revised plans
2317	R-40-573. See revised plans
2318	R-40-573. See revised plans
2320	R-40-573. See revised plans
2328	R-40-573. See revised plans
2329	R-40-573. See revised plans
2330	R-40-573. See revised plans
2352	R-40-576. See revised plans

Project ID 1100-18-73

Added Plan Sheets	
Plan Sheet	Plan Sheet Title (brief description of why sheet was added)
140A-B	Miscellaneous Quantities – Pavement Marking Removals

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. 05

1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

October 8, 2020

Special Provisions

302. Precast Trench Drain, Item SPV.0090.8031; Temporary Precast Trench Drain, Item SPV.0090.8036.

Add the following to the beginning of **B.1 Documentation***:*

Furnish one of the following trench drains or an approved equal:

- ABT PDX Series with Series 502 Class E Grate
- ACO Highway Drain HD 200 8-Inch w/ Monolithic Trench Drains (with Ductile Iron Access Units)

359. Remove Pavement Marking 24-Inch, Item SPV.0090.0406.

A Description

Complete removal of markings in accordance with specification section 646.3.4 except as modified herein.

B Materials

Provide necessary materials to remove the marking completely.

C Construction

The removal shall be to the satisfaction of the engineer.

D Measurement

The department will measure Remove Pavement Marking 24-Inch by the linear foot of pavement marking 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.0090.0406	Remove Pavement Marking 24-inch	LF

Payment is full compensation for removing pavement marking.

Schedule of Items
Attached, dated October 8, 2020, are the revised Schedule of Items Pages 9, 10, 34, 45, 56, 57, and 66.

Plan Sheets
The following 8½ x 11-inch sheets are attached and made part of the plans for this proposal:

1060-33-84

Revised: 1984, 2302-2305, 2307, 2309, 2311-2313, 2315-2318, 2320, 2328-2330, 2352

1100-18-73

Added: Project ID 1100-18-76: 140A-B

END OF ADDENDUM

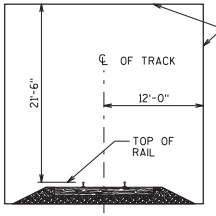
STATE PROJECT NUMBER

1060-33-84

TOTAL ESTIMATED QUANTITIES

ITEM NO.	BID ITEM	UNIT	B-40-878							TEMPORARY STRUCTURE						TOTAL
			S. APPR. SLAB	SOUTH ABUT.	PIER	NORTH ABUT.	N. APPR. SLAB	SUPER	SUB-TOTAL	SOUTH ABUT.	PIER 1	PIER 2	NORTH ABUT.	SUPER	SUB-TOTAL	
203.0200.0004	REMOVING OLD STRUCTURE STA. 417NS+50	LS	-	-	-	-	-	-	1	-	-	-	-	-	-	1
203.0200.0005	REMOVING OLD STRUCTURE STA. 418NS+15	LS	-	-	-	-	-	-	-	-	-	-	-	-	1	1
203.0200.0006	REMOVING OLD STRUCTURE STA. 22RDE+37	LS	-	-	-	-	-	-	1	-	-	-	-	-	-	1
203.0210.S.0001	ABATEMENT OF ASBESTOS CONTAINING MATERIAL STRUCTURE B-40-0137	LS	-	-	-	-	-	-	1	-	-	-	-	-	-	1
205.0501.S.0001	EXCAVATION, HAULING, AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL	TON	-	5,110	-	5,770	-	-	10,880	-	-	-	-	-	-	10,880
206.1000.0008	EXCAVATION FOR STRUCTURES BRIDGES B-40-878	LS	-	-	-	-	-	-	1	-	-	-	-	-	-	1
210.1100	BACKFILL STRUCTURE TYPE A	CY	-	-	-	-	-	-	-	-	-	-	95	-	95	95
502.0100	CONCRETE MASONRY BRIDGES	CY	35	482	341	524	35	-	1,417	43	131	131	40	-	345	1,762
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	-	377	-	522	-	-	899	-	-	-	-	-	-	899
502.4207	ADHESIVE ANCHORS NO. 7 BAR	EACH	-	-	-	-	-	-	-	23	-	-	-	-	23	23
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	5,060	289,150	28,610	288,490	5,060	-	616,370	6,270	4,620	4,550	6,410	-	21,850	638,220
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	-	100,010	42,690	102,430	-	-	245,130	-	-	-	-	-	-	245,130
505.0911	BAR COUPLERS NO. 11	EACH	-	218	-	218	-	-	436	-	-	-	-	-	-	436
506.0105	STRUCTURAL STEEL CARBON	LB	-	949	-	949	-	43,149	45,047	544	-	-	544	5,534	6,622	51,669 (3)(5)
506.0605	STRUCTURAL STEEL HS	LB	-	(5) -	-	(5) -	(3)(5)	2,123,785	2,123,785	-	-	-	-	991,047	991,047	3,114,832
506.3004	WELDED STUD SHEAR CONNECTORS 3/4X4-INCH	EACH	-	56	-	56	-	-	112	32	-	-	32	-	64	176
511.1200.0003	TEMPORARY SHORING B-40-878	SF	-	-	1,758	-	-	-	1,758	-	225	450	-	-	675	2,433
514.1000	RAILROAD DECK DRAIN SYSTEM B-40-878	LS	-	-	-	-	-	1	1	-	-	-	-	-	-	1
514.2625	DOWNSPOUT 6-INCH	LF	-	-	-	-	-	46	46	-	-	-	-	-	-	46
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	-	64	-	67	-	-	131	-	-	-	-	-	-	131
517.0600.0007	PAINTING EPOXY SYSTEM B-40-878	LS	-	-	-	-	-	1	1	-	-	-	-	-	-	1
517.1010.S.0007	CONCRETE STAINING B-40-878	SF	-	3,314	3,042	4,009	-	-	10,365	-	-	-	-	-	-	10,365
517.1050.S.0007	ARCHITECTURAL SURFACE TREATMENT B-40-878	SF	-	2,578	2,902	3,306	-	-	8,786	-	-	-	-	-	-	8,786
550.0500	PILE POINTS	EACH	-	-	-	-	-	-	-	5	10	10	5	-	30	30
612.0106	PIPE UNDERDRAIN 6-INCH	LF	-	354	-	380	-	-	734	-	-	-	-	-	-	734
612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	-	5	-	73	-	-	78	-	-	-	-	-	-	78
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	-	295	-	317	-	-	612	-	-	-	-	-	-	612
645.0140	GEOTEXTILE TYPE SAS	SY	-	382	-	455	-	-	837	543	-	-	771	-	1,314	2,151
SPV.0035.0003	EXCAVATION, HAULING, AND REUSE OF LOW-LEVEL CONTAMINATED SOIL	CY	-	360	-	-	-	-	360	-	-	-	-	-	-	360
SPV.0060.4008	PILE DYNAMIC ANALYZER (PDA) TESTING	EACH	-	-	-	-	-	-	-	2	2	2	2	-	8	8
SPV.0060.4028	PILE DYNAMIC ANALYZER (PDA) RESTRIKES	EACH	-	-	-	-	-	-	-	2	2	2	2	-	8	8
SPV.0060.4048	CASE PILE WAVE ANALYSIS PROGRAM (CAP/WAP) EVALUATION	EACH	-	-	-	-	-	-	-	1	1	1	1	-	4	4
SPV.0060.4068	BEARING PADS ELASTOMERIC SPECIAL TEMPORARY	EACH	-	-	-	-	-	-	-	3	22	22	3	-	50	50
SPV.0060.4088	BEARINGS HIGH-LOAD MULTI-ROTATIONAL T-GUIDED UPRR	EACH	-	2	-	2	-	-	4	-	-	-	-	-	-	4
SPV.0060.4108	BEARINGS HIGH-LOAD MULTI-ROTATIONAL NON-GUIDED UPRR	EACH	-	-	4	-	-	-	4	-	-	-	-	-	-	4
SPV.0060.4128	BEARINGS HIGH-LOAD MULTI-ROTATIONAL L-GUIDED UPRR	EACH	-	1	2	1	-	-	4	-	-	-	-	-	-	4
SPV.0060.4148	THERMAL INTEGRITY PROFILER (TIP) TESTING, DRILLED FOUNDATION SHAFT 59.06-INCH	EACH	-	-	4	-	-	-	4	-	-	-	-	-	-	4
SPV.0060.4168	THERMAL INTEGRITY PROFILER (TIP) TESTING, WALL SECANT PILE 59.06-INCH	EACH	-	3	-	3	-	-	6	-	-	-	-	-	-	6
SPV.0060.4171	CROSSHOLE SONIC LOG (CSL) TESTING, DRILLED FOUNDATION SHAFT 59.06 INCH	EACH	-	-	4	-	-	-	4	-	-	-	-	-	-	4
SPV.0060.4172	CROSSHOLE SONIC LOG (CSL) TESTING, WALL SECANT PILE 59.06-INCH	EACH	-	36	-	36	-	-	72	-	-	-	-	-	-	72
SPV.0060.4181	PILE INTEGRITY TESTING (PIT), DRILLED FOUNDATION SHAFT 59.06 INCH	EACH	-	-	4	-	-	-	4	-	-	-	-	-	-	4
SPV.0060.4182	PILE INTEGRITY TESTING (PIT), WALL SECANT PILE 59.06-INCH	EACH	-	3	-	3	-	-	6	-	-	-	-	-	-	6
SPV.0075.4008	OBSTRUCTIONS DRILLED FOUNDATION SHAFT	HRS	-	-	6	-	-	-	6	-	-	-	-	-	-	6
SPV.0075.4048	OBSTRUCTIONS WALL SECANT PILE	HRS	-	18	-	18	-	-	36	-	-	-	-	-	-	36
SPV.0090.4008	PILING STEEL HP 14-INCH X 89 LB	LF	-	-	-	-	-	-	-	-	750	750	-	-	1,500	1,500
SPV.0090.4009	PILING STEEL HP 14-INCH X 117 LB	LF	-	-	-	-	-	-	-	750	-	-	750	-	1,500	1,500
SPV.0090.4028	DRILLED FOUNDATION SHAFT 59.06-INCH	LF	-	-	211	-	-	-	211	-	-	-	-	-	-	211
SPV.0090.4048	WALL SECANT PILE 59.06-INCH	LF	-	2,263	-	2,257	-	-	4,520	-	-	-	-	-	-	4,520
SPV.0090.4068	HANDRAIL B-40-878	LF	-	134	-	161	-	-	295	-	-	-	-	-	-	295
SPV.0090.4088	HANDRAIL TEMPORARY	LF	-	-	-	-	-	-	-	199	-	-	277	360	836	836
SPV.0105.4008	TRIAL WALL PANEL SECANT PILE 59.06-INCH	LS	-	-	-	-	-	-	1	-	-	-	-	-	-	1
SPV.0105.4015	TRACK, SHORING AND EXISTING STRUCTURE MONITORING UPRR	LS	-	-	-	-	-	-	-	-	-	-	-	-	1	1
SPV.0165.4028	TEMPORARY SHORING RAILROAD TYPE A	SF	-	-	-	-	-	-	-	2,210	-	-	3,676	-	5,886	5,886
SPV.0165.4048	TEMPORARY SHORING RAILROAD TYPE B	SF	-	-	-	-	-	-	-	-	-	-	120	-	120	120
SPV.0165.4088	PRECAST CONCRETE MODULAR WINGWALL	SF	-	397	-	352	-	-	749	-	-	-	-	-	-	749
SPV.0165.4090	GEOCOMPOSITE WALL DRAIN	SF	-	445	-	675	-	-	1,120	-	-	-	-	-	-	1,120
SPV.0180.4008	MEMBRANE WATERPROOFING	SY	70	-	-	-	70	1,090	1,230	-	-	-	-	820	820	2,050
SPV.0180.4048	ASPHALT PANELS	SY	140	-	-	-	140	1,906	2,186	-	-	-	-	1,431	1,431	3,617
SPV.0195.4008	BASE AGGREGATE OPEN GRADED SPECIAL	TON	-	2,230	-	1,940	-	-	4,170	2,840	-	-	2,520	-	5,360	9,530
	NON-BID ITEM															
	NAME PLATE	EACH														1
	BRIDGE SEAT PROTECTION	LS														1
	PREFORMED JOINT FILLER	SIZE														3/4", 1 1/2", 2
	EXPANDED POLYSTYRENE	SIZE														1"
	NON-BITUMINOUS JOINT SEALER	SIZE														3/4", 1 1/2", 2

ALL ITEMS ARE CATEGORY 2140



MINIMUM CONSTRUCTION CLEARANCE ENVELOPE

(NORMAL TO RAILROAD)

Addendum No. 05
ID 1060-33-84
Revised Sheet 1984
October 8, 2020

SDR
10/07/20

WISCONSIN
JAMES W. CARLSON
E-35135
10/07/2020
MILWAUKEE, WIS.
PROFESSIONAL ENGINEER

NO.	DATE	REVISION	BY
(5)	10/7/20	STL. QTY. ADDENDUM	JWCIII
(3)	9/23/20	STL. QTY. ADDENDUM	JWCIII

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

FORWARD 45

STRUCTURE B-40-878

MILWAUKEE SUB. M.P. 91.84
LAT. 43°3'21"N/LONG. 88°2'59"W

DRAWN BY ENS

PLANS CK'D. JWC

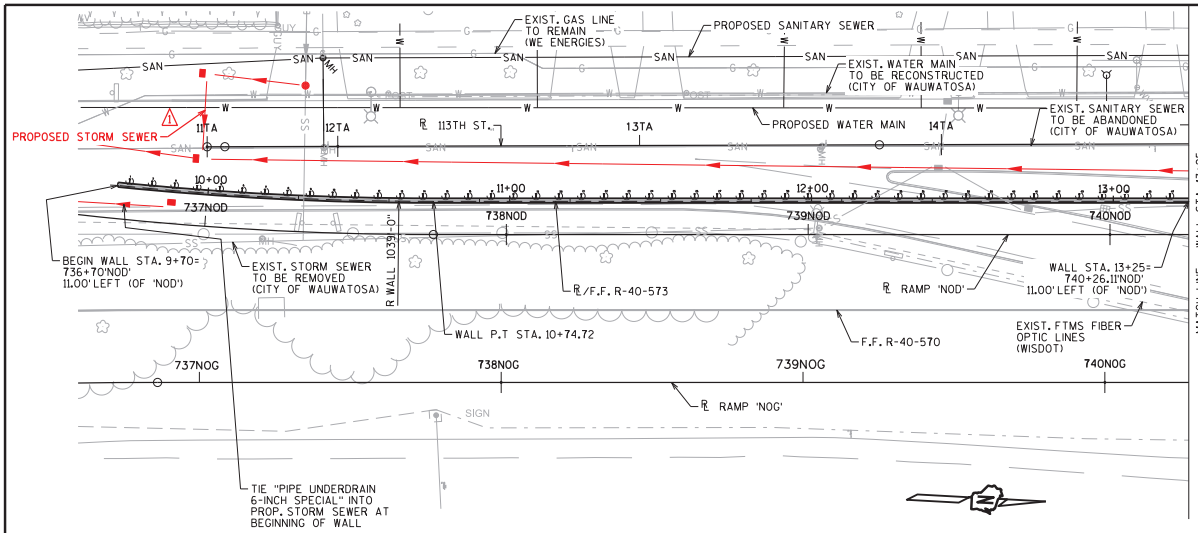
QUANTITIES

SHEET 4 OF 78

1984

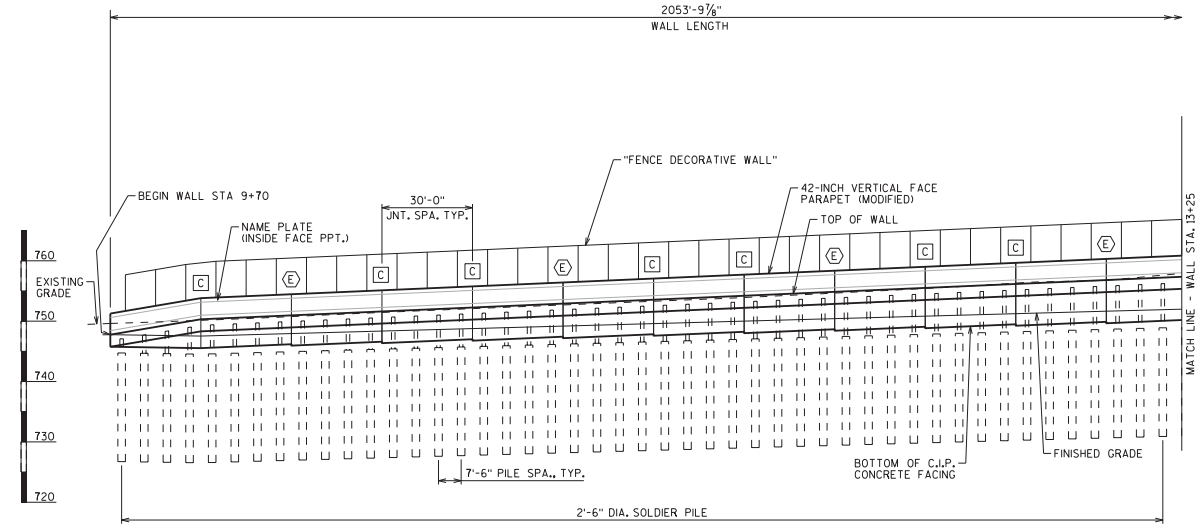
8

8



PLAN

SOLDIER PILE RETAINING WALL



ELEVATION

LOOKING WEST AT F.F. OF WALL
(VERTICAL EXAGGERATION - 2X)

LIST OF DRAWINGS

1. GENERAL PLAN & ELEVATION 1
2. GENERAL PLAN & ELEVATION 2
3. GENERAL PLAN & ELEVATION 3
4. GENERAL PLAN & ELEVATION 4
5. GENERAL PLAN & ELEVATION 5
6. GENERAL NOTES & QUANTITIES
7. TYPICAL SECTIONS 1
8. TYPICAL SECTIONS 2
9. TYPICAL SECTIONS 3
10. SOLDIER PILE DATA TABLE 1
11. SOLDIER PILE DATA TABLE 2
12. SOLDIER PILE DATA TABLE 3
13. SOLDIER PILE DATA TABLE 4
14. TIEBACK ANCHOR DETAILS
15. TIEBACK ANCHOR DATA TABLE 1
16. TIEBACK ANCHOR DATA TABLE 2
17. COPING AND WALL FACING DETAILS 1
18. COPING AND WALL FACING DETAILS 2
19. COPING AND WALL FACING DETAILS 3
20. WALL FACING ELEVATION (1 OF 5)
21. WALL FACING ELEVATION (2 OF 5)
22. WALL FACING ELEVATION (3 OF 5)
23. WALL FACING ELEVATION (4 OF 5)
24. WALL FACING ELEVATION (5 OF 5)
25. WALL FACING & COPING BILL OF BARS
26. TOP OF WALL DETAILS
27. PARAPET AND ANCHOR SLAB DETAILS 1
28. PARAPET AND ANCHOR SLAB DETAILS 2
29. PARAPET AND ANCHOR SLAB DETAILS 3
30. PARAPET AND ANCHOR SLAB DETAILS 4
31. AESTHETIC WALL TREATMENT ELEVATION (1 OF 2)
32. AESTHETIC WALL TREATMENT ELEVATION (2 OF 2)
33. AESTHETIC WALL TREATMENT DETAILS
34. FENCE DECORATIVE RETAINING WALL (1 OF 3)
35. FENCE DECORATIVE RETAINING WALL (2 OF 3)
36. FENCE DECORATIVE RETAINING WALL (3 OF 3)
37. RAILING PIPE DETAILS
38. SUBSURFACE EXPLORATION 1
39. SUBSURFACE EXPLORATION 2

DESIGN DATA

MATERIAL PROPERTIES

CONCRETE MASONRY RETAINING WALL	f'c = 4,000 psi
CONCRETE MASONRY-ALL OTHER	f'c = 3,500 psi
BAR STEEL REINFORCEMENT, GRADE 60	fy=60,000 psi
HIGH STRENGTH STRUCTURAL STEEL	fy=50,000 psi
* TIMBER LAGGING	fbo=1,000 psi E=1,700,000 psi

* MATERIAL VALUES BASED ON DOUGLAS FIR-LARCH NO. 1 > 2" WIDE, REFERENCE AASHTO LRFD SPECIFICATION TABLE 8.4.1.1.4-1

LIVE LOAD

LIVE LOAD SURCHARGE: 240 PSF

STATE PROJECT NUMBER

1060-33-84

Addendum No. 05
ID 1060-33-84
Revised Sheet 2302
October 8, 2020

WALL STA.	℄ STA.	FINISHED GRADE EL.	TOP OF WALL EL.
9+70.00	736+70.00'NOD'	747.76	747.76
9+75.00	736+75.05'NOD'	747.80	748.51
9+85.00	736+85.16'NOD'	747.91	750.01
10+00.00	737+00.31'NOD'	747.53	750.31
10+11.50	737+11.94'NOD'	747.69	750.56
10+25.00	737+25.58'NOD'	747.88	750.85
10+50.00	737+50.84'NOD'	748.22	751.39
10+75.00	737+76.11'NOD'	748.56	751.93
11+00.00	738+01.11'NOD'	748.91	752.47
11+25.00	738+26.11'NOD'	749.25	753.02
11+50.00	738+51.11'NOD'	749.59	753.56
11+75.00	738+76.11'NOD'	749.94	754.10
12+00.00	739+01.11'NOD'	750.28	754.64
12+25.00	739+26.11'NOD'	750.62	755.18
12+50.00	739+51.11'NOD'	750.97	755.73
12+75.00	739+76.11'NOD'	751.31	756.27
13+00.00	740+01.11'NOD'	751.65	756.81
13+25.00	740+26.11'NOD'	751.99	757.35

WALL ELEVATION TABLE

WALL STA. 9+70 TO 13+25

10/7/20

LEGEND

[C] WALL FACING CONTRACTION JOINT

(E) WALL FACING EXPANSION JOINT

STRUCTURE DESIGN CONTACTS:
CHRISTOPHER DOLL (608) 266-3229
AARON BONK (608) 261-0261

NO.	DATE	REVISION	BY
1	10/6/20	STORM SEWER	CAD

BUREAU OF STRUCTURES

ACCEPTED AMB 9/3/20
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE R-40-573

WALL ALONG IH 41 - 113TH STREET

COUNTY MILWAUKEE | CITY WAUWATOSA

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY CAD | DESIGNED CK'D. BAF | DRAWN BY WWR | PLANS CK'D. CAD

GENERAL PLAN & ELEVATION 1

SHEET 1 OF 39

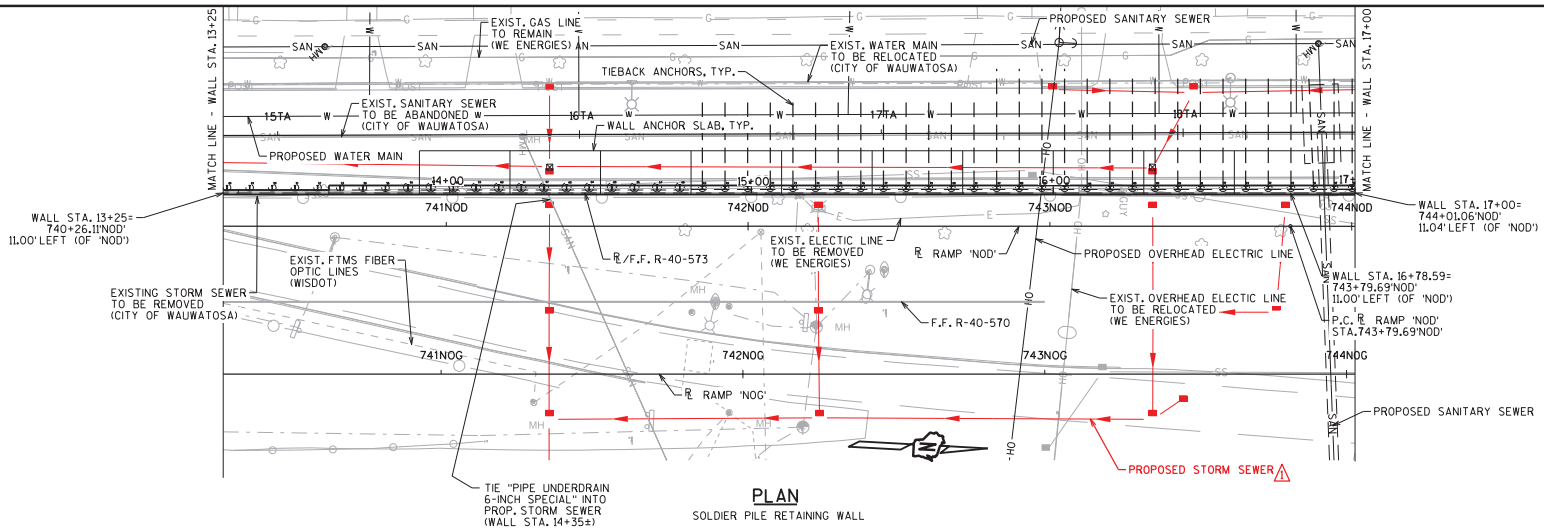
2302

I.D. 1060-33-16Y DATE: FEB. 2020

SCALE = 20.00

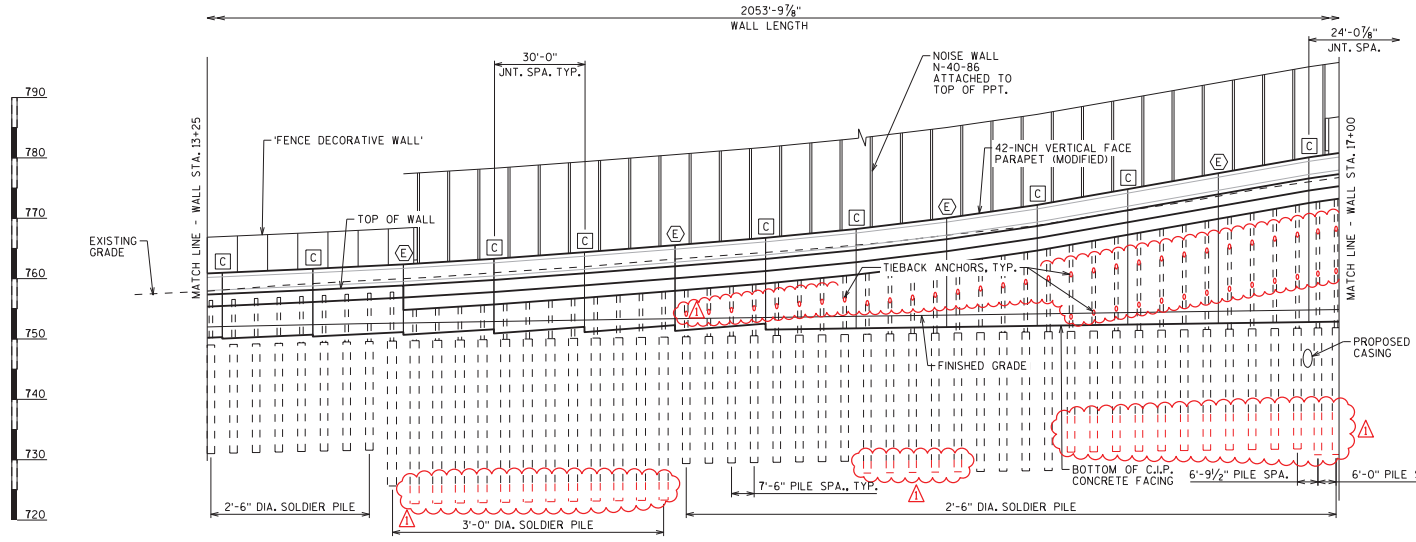
8 8

STATE PROJECT NUMBER
1060-33-84



PLAN

SOLDIER PILE RETAINING WALL



ELEVATION

LOOKING WEST AT F.F. OF WALL
(VERTICAL EXAGGERATION - 2X)

WALL STA.	℄ STA.	FINISHED GRADE EL.	TOP OF WALL EL.
13+25.00	740+26.11'NOD'	751.99	757.35
13+50.00	740+51.11'NOD'	752.29	757.89
13+75.00	740+76.11'NOD'	752.55	758.45
14+00.00	741+01.11'NOD'	752.76	759.12
14+25.00	741+26.11'NOD'	752.94	759.93
14+50.00	741+51.11'NOD'	753.12	760.87
14+75.00	741+76.11'NOD'	753.29	761.84
15+00.00	742+01.11'NOD'	753.47	762.81
15+25.00	742+26.11'NOD'	753.65	763.90
15+50.00	742+51.11'NOD'	753.82	765.25
15+75.00	742+76.11'NOD'	754.00	766.84
16+00.00	743+01.11'NOD'	754.17	768.70
16+25.00	743+26.11'NOD'	754.34	770.88
16+50.00	743+51.11'NOD'	754.52	773.08
16+75.00	743+76.11'NOD'	754.69	775.27
17+00.00	744+01.06'NOD'	754.86	777.40

WALL ELEVATION TABLE

WALL STA. 13+25 TO 17+00

LEGEND

[C] WALL FACING CONTRACTION JOINT

(E) WALL FACING EXPANSION JOINT

Addendum No. 05
ID 1060-33-84
Revised Sheet 2303
October 8, 2020

NO.	DATE	REVISION	BY
1	10/6/20	FOOTINGS/TIEBACK ELEV./STORM SEW.	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-573

DRAWN BY: WWR | PLANS CK'D.: CAD

GENERAL PLAN & ELEVATION 2

SHEET 2

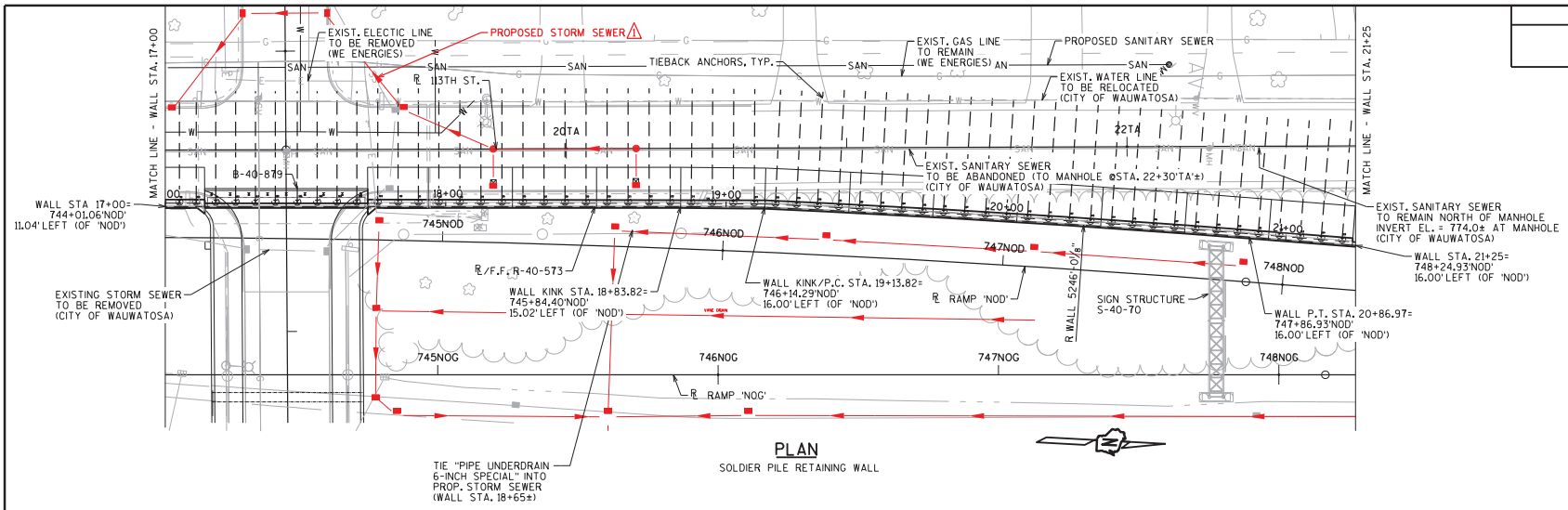
2303

AMB 10/7/20

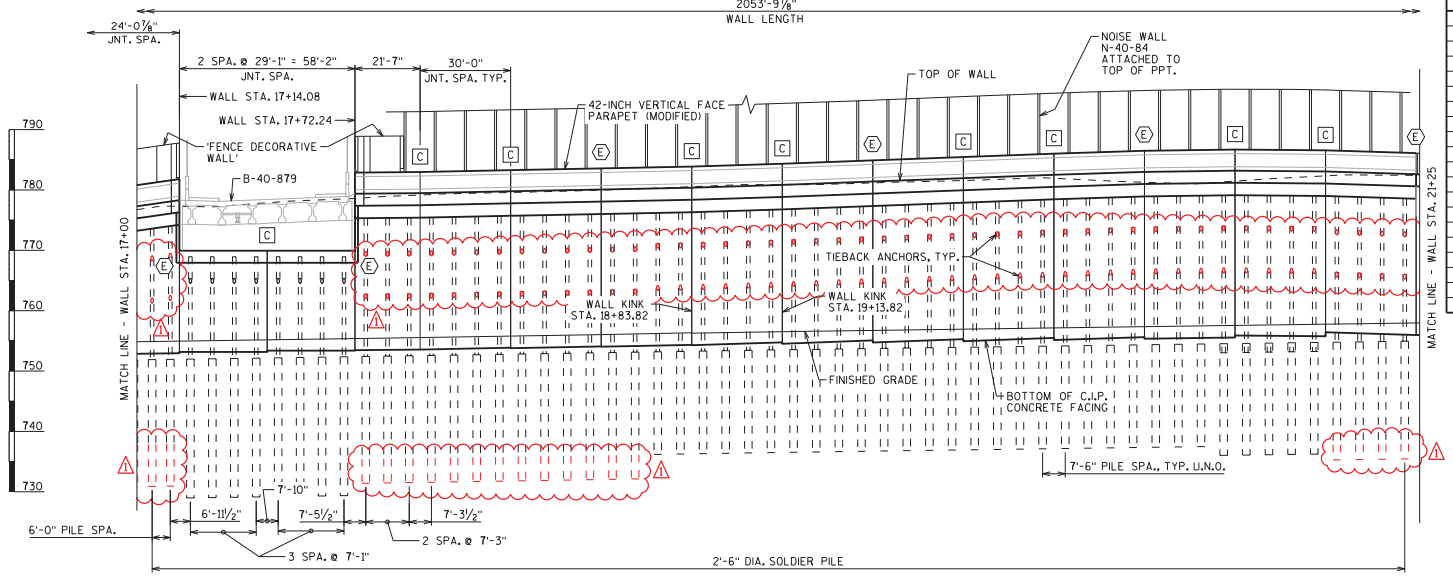
SCALE =

STATE PROJECT NUMBER
1060-33-84

Addendum No. 05
ID 1060-33-84
Revised Sheet 2304
October 8, 2020



PLAN
SOLDIER PILE RETAINING WALL



ELEVATION
LOOKING WEST AT F.F. OF WALL
(VERTICAL EXAGGERATION - 2X)

WALL STA.	℄ STA.	FINISHED GRADE EL.	TOP OF WALL EL.
17+00.00	744+01.06'NOD'	754.86	777.40
17+08.24	744+09.29'NOD'	754.92	777.81
17+25.00	744+26.01'NOD'	755.04	769.94
17+50.00	744+50.95'NOD'	755.22	769.94
17+75.00	744+75.89'NOD'	755.41	769.94
17+78.00	744+78.89'NOD'	755.44	779.21
18+00.00	745+00.83'NOD'	755.61	779.56
18+25.00	745+25.76'NOD'	755.80	779.80
18+50.00	745+50.68'NOD'	756.01	780.04
18+75.00	745+75.60'NOD'	756.21	780.29
19+00.00	746+00.51'NOD'	756.42	780.58
19+25.00	746+25.43'NOD'	756.61	781.06
19+50.00	746+50.35'NOD'	756.78	781.52
19+75.00	746+75.27'NOD'	756.95	781.98
20+00.00	747+00.20'NOD'	757.12	782.45
20+25.00	747+25.12'NOD'	757.30	782.90
20+50.00	747+50.04'NOD'	757.47	783.17
20+75.00	747+74.97'NOD'	757.64	783.22
21+00.00	747+99.93'NOD'	757.81	783.02
21+25.00	748+24.93'NOD'	757.98	782.59

WALL ELEVATION TABLE
WALL STA. 17+00 TO 21+25

LEGEND
- [C] WALL FACING CONTRACTION JOINT
- (E) WALL FACING EXPANSION JOINT

NO.	DATE	REVISION	BY
1	10/6/20	FOOTINGS/TIEBACK ELEV./STORM SEW.	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-573

DRAWN BY: WWR | PLANS CK'D.: CAD

GENERAL PLAN & ELEVATION 3

SHEET 3

2304

AMB 10/7/20

SCALE = 20

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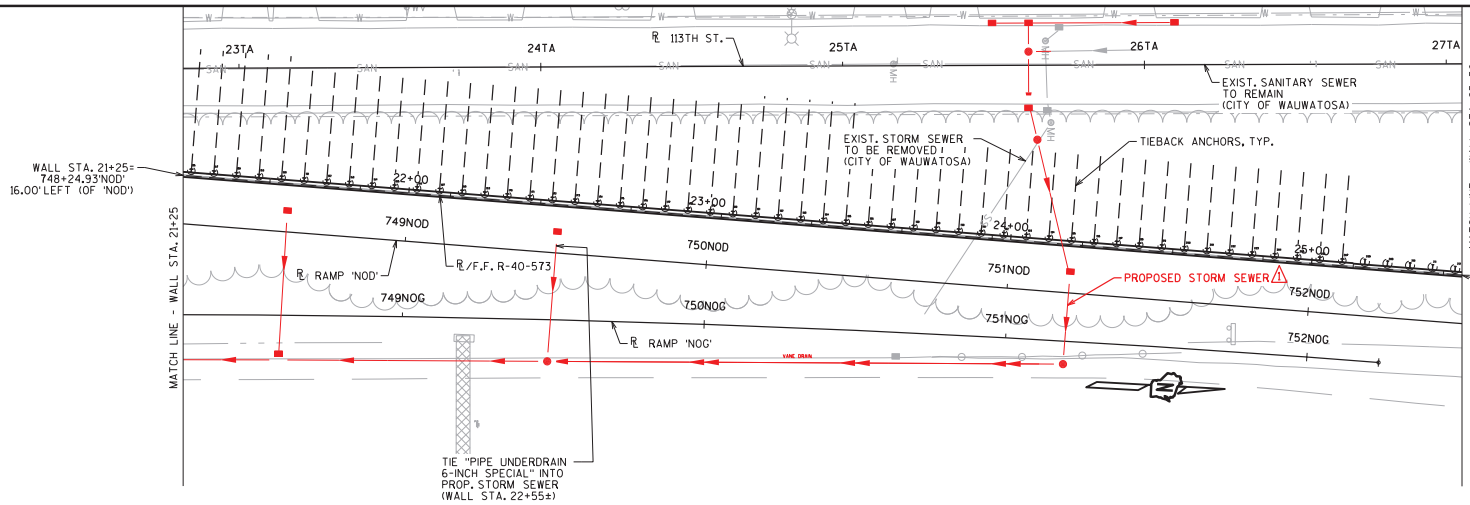
STATE PROJECT NUMBER
1060-33-84

Addendum No. 05
ID 1060-33-84
Revised Sheet 2305
October 8, 2020



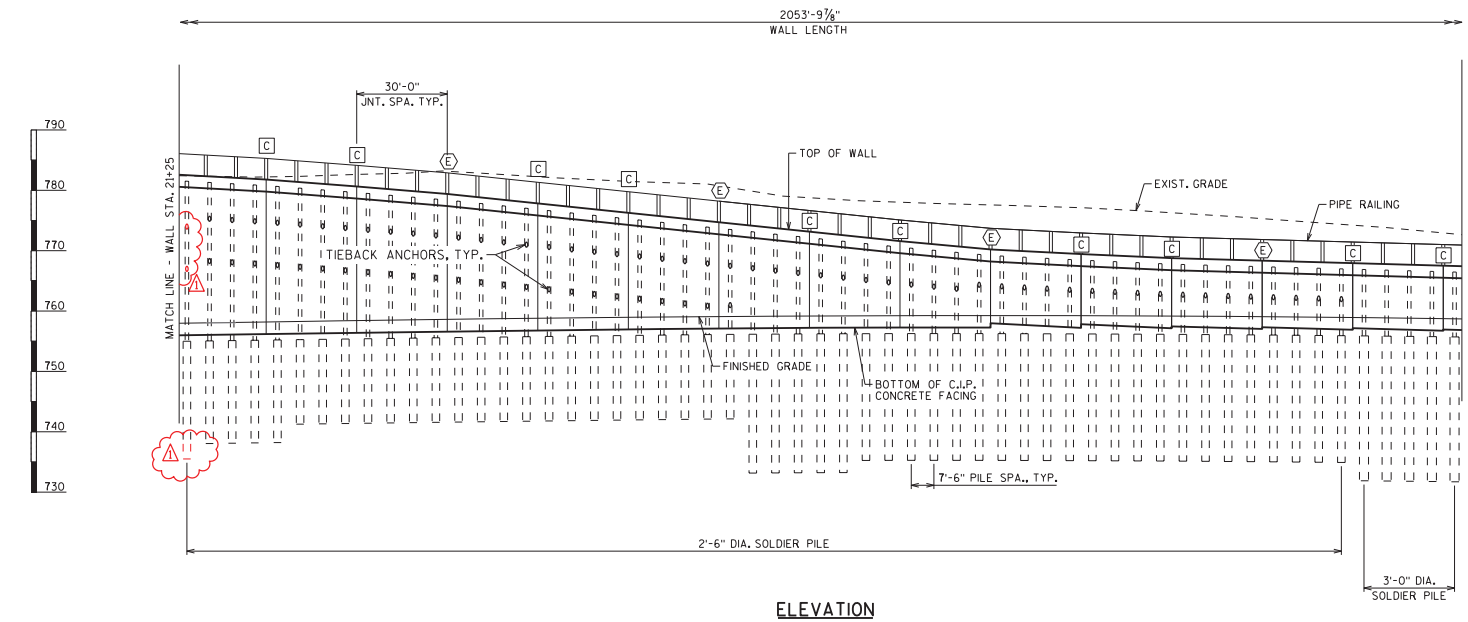
PLAN

SOLDIER PILE RETAINING WALL

WALL STA.	℄ STA.	FINISHED GRADE EL.	TOP OF WALL EL.
21+25.00	748+24.93'NOD'	757.98	782.59
21+50.00	748+49.93'NOD'	758.16	781.92
21+65.00	748+64.93'NOD'	758.26	781.40
21+75.00	748+74.93'NOD'	758.33	781.00
21+85.00	748+84.93'NOD'	758.40	780.59
22+00.00	748+99.93'NOD'	758.50	779.98
22+25.00	749+24.93'NOD'	758.65	778.81
22+50.00	749+49.93'NOD'	758.81	777.51
22+75.00	749+74.93'NOD'	758.96	776.21
23+00.00	749+99.93'NOD'	759.11	774.91
23+25.00	750+24.93'NOD'	759.19	773.61
23+50.00	750+49.93'NOD'	759.27	772.31
23+75.00	750+74.93'NOD'	759.27	771.00
23+87.00	750+86.93'NOD'	759.27	770.38
24+00.00	750+99.93'NOD'	759.26	770.05
24+25.00	751+24.93'NOD'	759.21	769.41
24+45.00	751+44.93'NOD'	759.17	768.89
24+50.00	751+49.93'NOD'	759.16	768.82
24+75.00	751+74.93'NOD'	759.07	768.47
25+00.00	751+99.93'NOD'	758.98	768.13
25+25.00	752+24.93'NOD'	758.84	767.78
25+50.00	752+49.93'NOD'	758.71	767.43

WALL ELEVATION TABLE

WALL STA. 21+25 TO 25+50



ELEVATION

LOOKING WEST AT F.F. OF WALL
(VERTICAL EXAGGERATION - 2X)

LEGEND

- (C) WALL FACING CONTRACTION JOINT
- (E) WALL FACING EXPANSION JOINT

NO.	DATE	REVISION	BY
1	10/6/20	FOOTINGS/TIEBACK ELEV./STORM SEW.	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-573

DRAWN BY WWR | PLANS CK'D. CAD

GENERAL PLAN & ELEVATION 4

SHEET 4

2305

AMB 10/7/20

SCALE = 20

STATE PROJECT NUMBER
1060-33-84

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTALS
206.3000	EXCAVATION FOR STRUCTURES RETAINING WALLS R-40-573	LS	1
502.0110.S	CONCRETE MASONRY SOLDIER PILE FOOTINGS	CY	1,135 ⚠1
502.3200	PROTECTIVE SURFACE TREATMENT	SY	104
504.0500	CONCRETE MASONRY RETAINING WALLS	CY	2,127
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	234,575
506.0605	STRUCTURAL STEEL HS	LB	593,855 ⚠1
506.3010	WELDED STUD SHEAR CONNECTORS 7/8X5-INCH	EACH	6,147
513.2001	RAILING PIPE R-40-573	LF	900
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	159
517.0600	PAINTING EPOXY SYSTEM R-40-573	LS	1
517.1010.S	CONCRETE STAINING R-40-573	SF	34,045
517.1050.S	ARCHITECTURAL SURFACE TREATMENT R-40-573	SF	23,715
SPV.0060	ANCHOR ASSEMBLIES NOISE BARRIER STRUCTURES R-40-573	EACH	65
SPV.0060	TIEBACK ANCHORS	EACH	226
SPV.0060	TIEBACK ANCHORS PERFORMANCE TESTS	EACH	12
SPV.0075	OBSTRUCTIONS FOUNDATION DRILLING	HRS	25
SPV.0090	PIPE UNDERDRAIN 6-INCH SPECIAL	LF	2,150
SPV.0090	FOUNDATION DRILLING	LF	9,100 ⚠1
SPV.0090	FENCE DECORATIVE WALL	LF	460
SPV.0110	TIMBER LAGGING	MBM	81
SPV.0165	GEOCOMPOSITE DRAIN BOARD	SF	24,690
	NON-BID ITEMS		
	FILLER	SIZE	——

HORIZONTAL CURVE DATA

WALL CURVE 1	WALL CURVE 2	WALL CURVE 3
P.I. = 10+22.40	P.I. = 20+00.40	P.I. = 26+66.83
Δ = 5°-46'-29"	Δ = 1°-53'-29"	Δ = 4°-27'-41"
D = 5°-30'-52"	D = 1°-5'-32"	D = 3°-51'-39"
T = 52.40'	T = 86.59'	T = 57.80'
L = 104.72'	L = 173.17'	L = 115.55'
R = 1039.00'	R = 5246.01'	R = 1484.00'
P.C. = 9+70.00	P.C. = 19+13.82	P.C. = 26+09.06
P.T. = 10+74.72	P.T. = 20+86.99	P.T. = 27+24.61

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 EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE SHOWN OR NOTED.

ALL DIMENSIONS ARE ALONG THE FRONT FACE OF WALL UNLESS OTHERWISE SHOWN OR NOTED.

THE EXISTING GROUND LINE SHALL BE USED AS THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES RETAINING WALLS R-40-573".

THE CONTRACTOR MUST COORDINATE THE CONSTRUCTION OF WALL R-40-573 WITH THE CONSTRUCTION OF THE WEST ABUTMENT OF BRIDGE B-40-879 AND SIGN STRUCTURE S-40-70.

SEE SPECIAL PROVISIONS FOR AESTHETIC TREATMENT TO WALL.

BACKFILL ALL SPACES AT THE BACK FACE AND NOT OCCUPIED BY THE NEW STRUCTURE/ROADWAY WITH FLOWABLE BACKFILL OR CONTROLLED LOW STRENGTH MATERIAL (CLSM). WHERE COMPACTION WITH SMALL WALK BEHIND EQUIPMENT AT THE BACKFACE OF WALL CAN REASONABLY BE ACCOMPLISHED AS DETERMINED BY THE ENGINEER, STRUCTURE BACKFILL IN ACCORDANCE WITH SECTION 210 OF THE STANDARD SPECIFICATIONS MAY BE USED AT THE CONTRACTORS OPTION. ALL BACKFILL MATERIAL AND WORK IS INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES RETAINING WALLS R-40-573".

EXISTING STRUCTURES ARE NOT SHOWN IN THESE PLANS. THE REMOVAL OF THESE STRUCTURES IS INCLUDED IN A LUMP SUM PAY ITEM AS PART OF THE B-40-879 BRIDGE QUANTITIES.

WALL ANCHOR SLAB, COPING & PARAPET EXPANSION JOINTS TO MATCH ALL WALL FACING EXPANSION & CONTRACTION JOINTS.

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 DETERMINATION AS TO TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE TOP HORIZONTAL SURFACE OF COPING ADJACENT TO PARAPETS ONLY.

Addendum No. 05
ID 1060-33-84
Revised Sheet 2307
October 8, 2020

SOLDIER PILE WALL NOTES

THE QUANTITY OF CAST-IN-PLACE CONCRETE MASONRY FOR THE SOLDIER PILE WALL COPING, CAST-IN-PLACE CONCRETE FACING, ANCHOR SLAB AND PARAPET IS PAID FOR UNDER THE ITEM "CONCRETE MASONRY RETAINING WALLS".

THE VOLUME OF EARTHWORK REQUIRED TO INSTALL THE MOMENT SLAB, SOLDIER PILES AND FOOTINGS IS INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES RETAINING WALLS R-40-573". AFTER WALL SOLDIER PILE CONSTRUCTION HAS BEEN COMPLETED, ALL EARTHWORK IN FRONT OF THE RETAINING WALL IS PAID FOR UNDER THE ROADWAY ITEM "COMMON EXCAVATION". SEE ROADWAY PLAN FOR EXCAVATION LIMITS.

FLOWABLE BACKFILL AND CLSM ARE INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES RETAINING WALLS R-40-573". SEE SPECIAL PROVISIONS FOR DESCRIPTION OF FLOWABLE BACKFILL AND CLSM.

SURFACE PREP AND PAINT SOLDIER PILES FROM TOP OF PILE TO 1'-0" BELOW TOP OF FOOTING WITH ONE COAT OF ZINC-RICH PRIMER AS SPECIFIED IN SECTION 517 OF THE STANDARD SPECIFICATIONS. WELDED STUD SHEAR CONNECTORS ARE NOT REQUIRED TO BE PAINTED. PAINTING OF PILES IS MEASURED AND PAID FOR AS BID ITEM NUMBER 517.0600, PAINTING EPOXY SYSTEM R-40-573.

FILL TO TOP OF SHAFT ELEVATION WHERE NEEDED TO PROVIDE WORKING SURFACE. FILL INCIDENTAL TO BID ITEM "CONCRETE MASONRY SOLDIER PILE FOOTINGS".

BACKFILL TO A MINIMUM OF 4'-0" BELOW THE TOP OF WALL ELEVATION PRIOR TO STRESSING TIEBACK ANCHORS. BACKFILL INCLUDED IN BID ITEM "EXCAVATION FOR STRUCTURES RETAINING WALLS R-40-573".

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NO.	DATE	REVISION	BY
⚠1	10/6/20	ESTIMATED QUANTITIES	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-573

DRAWN BY WWR | PLANS CK'D. CAD

AMB 10/7/20

GENERAL NOTES & QUANTITIES

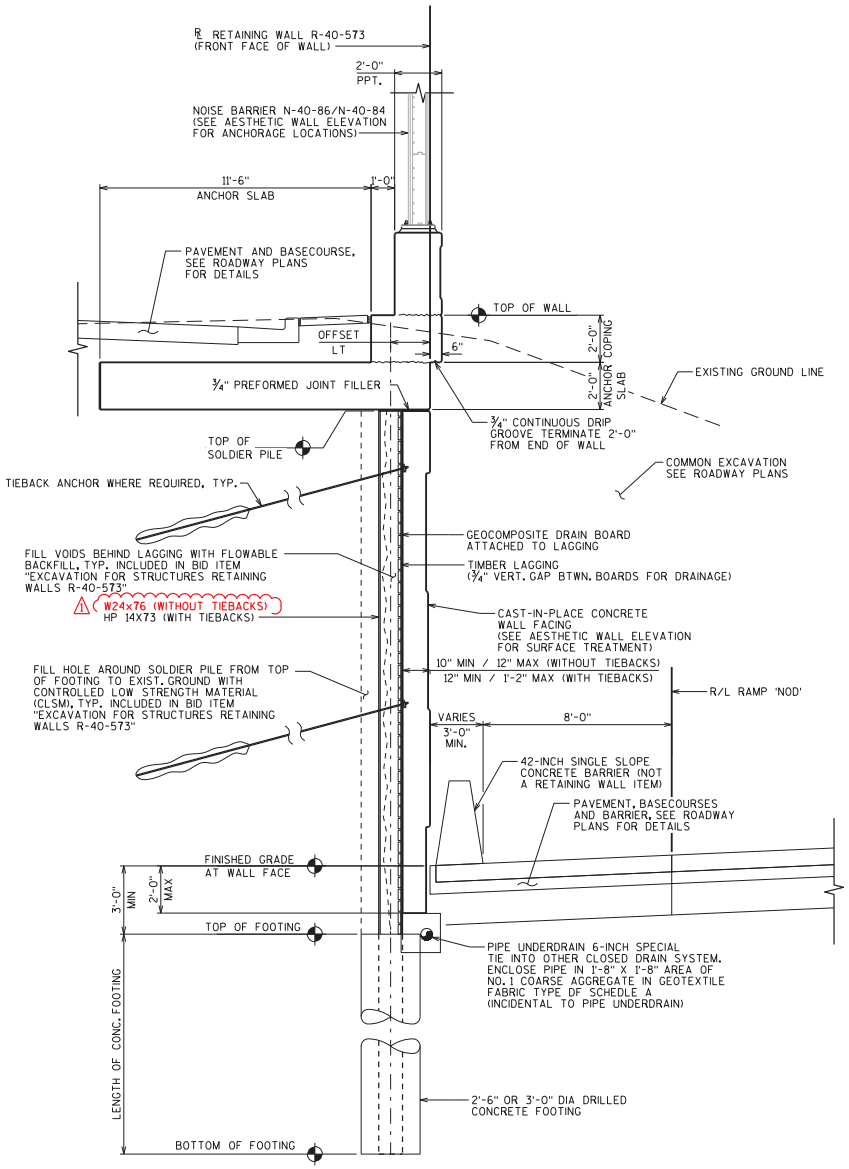
SHEET 6

2307

SCALE = 20

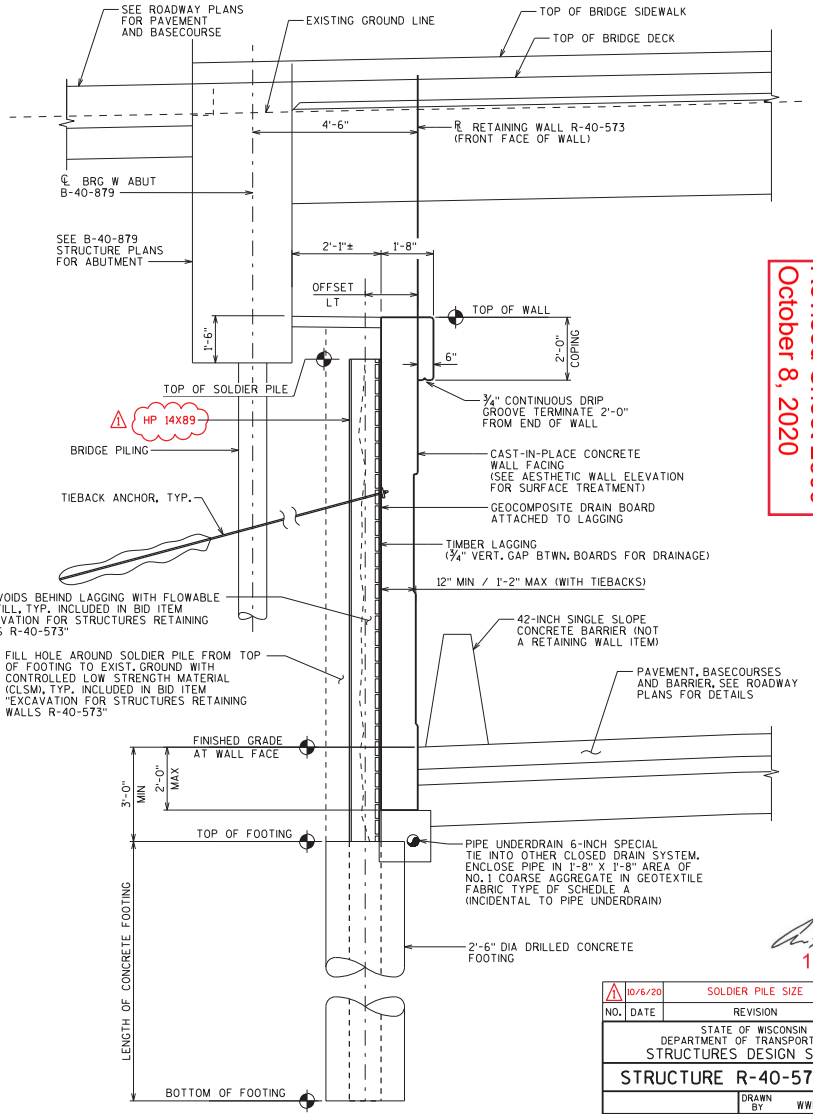
STATE PROJECT NUMBER

1060-33-84



TYPICAL SECTION 3

LOOKING NORTH
(WALL STA. 13+90 TO 17+14.08)
(WALL STA. 17+72.24 TO 20+60.07)
(WALL STA. 20+90.07 TO 21+23.83)



TYPICAL SECTION 4

LOOKING NORTH
(WALL STA. 17+14.08 TO 17+72.24)

Addendum No. 05
ID 1060-33-84
Revised Sheet 2309
October 8, 2020

AMB
10/7/20

NO.	DATE	REVISION	BY
1	10/6/20	SOLDIER PILE SIZE	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-573

DRAWN BY: WWR | PLANS CK'D.: CAD

TYPICAL SECTIONS 2

SHEET 8

2309

SCALE = 2.5"

8

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STATE PROJECT NUMBER

1060-33-84

SOLDIER PILE DATA TABLE

PILE NO.	WALL R/L STA	OFFSET LEFT	APPROX. EXISTING GRADE	FINISHED GRADE AT WALL FACE	FOUNDATION DRILLING LENGTH	TOP OF WALL	TOP OF SOLDIER PILE	TOP OF FOOTING	BOTTOM OF FOOTING	FOOTING LENGTH	FOOTING DIAMETER	SOLDIER PILE SECTION	SOLDIER PILE LENGTH	NO. OF SHEAR STUDS REQ'D	TIEBACK ELEV 1	TIEBACK ELEV 2	KNOWN OBSTRUCTION
1	9+73.75	1.75	749.68	747.79	19.78	748.32	747.32	744.54	726.54	18.00	2.5	W18X40	20.28	3	-	-	
2	9+81.25	1.75	749.80	747.87	20.83	749.45	748.20	744.62	726.62	18.00	2.5	W18X40	21.33	3	-	-	
3	9+88.75	1.75	749.93	747.82	21.52	750.09	748.59	744.57	726.57	18.00	2.5	W18X40	22.02	4	-	-	
4	9+96.25	1.75	750.07	747.63	21.86	750.24	748.74	744.38	726.38	18.00	2.5	W18X40	22.36	4	-	-	
5	10+03.75	1.75	750.21	747.58	22.06	750.39	748.89	744.33	726.33	18.00	2.5	W18X40	22.56	4	-	-	
6	10+11.25	1.75	750.36	747.69	22.12	750.55	749.05	744.44	726.44	18.00	2.5	W18X40	22.62	4	-	-	
7	10+18.75	1.75	750.51	747.79	22.17	750.72	749.22	744.54	726.54	18.00	2.5	W18X40	22.67	4	-	-	
8	10+26.25	1.75	750.67	747.90	22.23	750.88	749.38	744.65	726.65	18.00	2.5	W18X40	22.73	4	-	-	
9	10+33.75	1.75	750.85	748.00	22.29	751.04	749.54	744.75	726.75	18.00	2.5	W18X40	22.79	5	-	-	EXIST. STORM SEWER *
10	10+41.25	1.75	751.02	748.10	22.35	751.20	749.70	744.85	726.85	18.00	2.5	W18X40	22.85	5	-	-	
11	10+48.75	1.75	751.20	748.20	22.41	751.36	749.86	744.95	726.95	18.00	2.5	W18X40	22.91	5	-	-	
12	10+56.25	1.75	751.37	748.31	22.47	751.53	750.03	745.06	727.06	18.00	2.5	W18X40	22.97	5	-	-	
13	10+63.75	1.75	751.53	748.41	22.53	751.69	750.19	745.16	727.16	18.00	2.5	W18X40	23.03	5	-	-	
14	10+71.25	1.75	751.69	748.51	22.59	751.85	750.35	745.26	727.26	18.00	2.5	W18X40	23.09	5	-	-	
15	10+78.75	1.75	751.85	748.61	22.65	752.01	750.51	745.36	727.36	18.00	2.5	W18X40	23.15	5	-	-	
16	10+86.25	1.75	752.00	748.72	22.71	752.17	750.67	745.47	727.47	18.00	2.5	W18X40	23.21	5	-	-	
17	10+93.75	1.75	752.15	748.82	22.76	752.34	750.84	745.57	727.57	18.00	2.5	W18X40	23.26	5	-	-	
18	11+01.25	1.75	752.31	748.93	22.82	752.50	751.00	745.68	727.68	18.00	2.5	W18X40	23.32	5	-	-	
19	11+08.75	1.75	752.46	749.03	22.88	752.66	751.16	745.78	727.78	18.00	2.5	W18X40	23.38	5	-	-	
20	11+16.25	1.75	752.61	749.13	22.95	752.83	751.33	745.88	727.88	18.00	2.5	W18X40	23.45	5	-	-	
21	11+23.75	1.75	752.76	749.23	23.01	752.99	751.49	745.98	727.98	18.00	2.5	W18X40	23.51	5	-	-	
22	11+31.25	1.75	752.92	749.34	23.07	753.16	751.66	746.09	728.09	18.00	2.5	W18X40	23.57	5	-	-	
23	11+38.75	1.75	753.07	749.44	23.13	753.32	751.82	746.19	728.19	18.00	2.5	W18X40	23.63	5	-	-	
24	11+46.25	1.75	753.22	749.54	23.19	753.48	751.98	746.29	728.29	18.00	2.5	W18X40	23.69	5	-	-	
25	11+53.75	1.75	753.38	749.64	23.25	753.64	752.14	746.39	728.39	18.00	2.5	W18X40	23.75	5	-	-	
26	11+61.25	1.75	753.53	749.75	23.31	753.80	752.30	746.50	728.50	18.00	2.5	W18X40	23.81	6	-	-	
27	11+68.75	1.75	753.68	749.85	23.36	753.97	752.47	746.60	728.60	18.00	2.5	W18X40	23.86	6	-	-	
28	11+76.25	1.75	753.83	749.96	23.42	754.13	752.63	746.71	728.71	18.00	2.5	W18X40	23.92	6	-	-	
29	11+83.75	1.75	754.01	750.06	23.48	754.29	752.79	746.81	728.81	18.00	2.5	W18X40	23.98	6	-	-	
30	11+91.25	1.75	754.19	750.16	23.54	754.45	752.95	746.91	728.91	18.00	2.5	W18X40	24.04	6	-	-	
31	11+98.75	1.75	754.37	750.26	23.60	754.61	753.11	747.01	729.01	18.00	2.5	W18X40	24.10	6	-	-	
32	12+06.25	1.75	754.56	750.37	23.66	754.78	753.28	747.12	729.12	18.00	2.5	W18X40	24.16	6	-	-	
33	12+13.75	1.75	754.75	750.47	23.72	754.94	753.44	747.22	729.22	18.00	2.5	W18X40	24.22	6	-	-	
34	12+21.25	1.75	754.94	750.57	23.78	755.10	753.60	747.32	729.32	18.00	2.5	W18X40	24.28	6	-	-	EXIST. STORM SEWER *
35	12+28.75	1.75	755.13	750.67	23.84	755.26	753.76	747.42	729.42	18.00	2.5	W18X40	24.34	6	-	-	
36	12+36.25	1.75	755.32	750.78	23.90	755.43	753.93	747.53	729.53	18.00	2.5	W18X40	24.40	6	-	-	
37	12+43.75	1.75	755.52	750.88	23.96	755.59	754.09	747.63	729.63	18.00	2.5	W18X40	24.46	6	-	-	
38	12+51.25	1.75	755.72	750.99	24.02	755.76	754.26	747.74	729.74	18.00	2.5	W18X40	24.52	6	-	-	
39	12+58.75	1.75	755.95	751.09	24.08	755.92	754.42	747.84	729.84	18.00	2.5	W18X40	24.58	6	-	-	EXIST. STORM SEWER *
40	12+66.25	1.75	756.19	751.19	24.14	756.08	754.58	747.94	729.94	18.00	2.5	W18X40	24.64	6	-	-	EXIST. STORM SEWER *
41	12+73.75	1.75	756.42	751.29	24.20	756.24	754.74	748.04	730.04	18.00	2.5	W18X40	24.70	6	-	-	
42	12+81.25	1.75	756.54	751.40	24.26	756.41	754.91	748.15	730.15	18.00	2.5	W18X40	24.76	7	-	-	
43	12+88.75	1.75	756.63	751.50	24.32	756.57	755.07	748.25	730.25	18.00	2.5	W18X40	24.82	7	-	-	
44	12+96.25	1.75	756.72	751.60	24.38	756.73	755.23	748.35	730.35	18.00	2.5	W18X40	24.88	7	-	-	
45	13+03.75	1.75	756.93	751.70	24.44	756.89	755.39	748.45	730.45	18.00	2.5	W18X40	24.94	7	-	-	
46	13+11.25	1.75	757.28	751.80	24.50	757.05	755.55	748.55	730.55	18.00	2.5	W18X40	25.00	7	-	-	
47	13+18.75	1.75	757.62	751.91	24.56	757.22	755.72	748.66	730.66	18.00	2.5	W18X40	25.06	7	-	-	
48	13+26.25	1.75	757.96	752.01	24.62	757.38	755.88	748.76	730.76	18.00	2.5	W18X40	25.12	7	-	-	
49	13+33.75	1.75	758.25	752.10	24.69	757.54	756.04	748.85	730.85	18.00	2.5	W18X40	25.19	7	-	-	
50	13+41.25	1.75	758.54	752.19	24.77	757.70	756.20	748.94	730.94	18.00	2.5	W18X40	25.27	7	-	-	
51	13+48.75	1.75	758.83	752.28	24.84	757.86	756.36	749.03	731.03	18.00	2.5	W18X40	25.34	7	-	-	
52	13+56.25	1.75	759.06	752.36	24.93	758.03	756.53	749.11	731.11	18.00	2.5	W18X40	25.43	7	-	-	EXIST. STORM SEWER *
53	13+63.75	1.75	759.28	752.43	25.02	758.20	756.70	749.18	731.18	18.00	2.5	W18X40	25.52	7	-	-	EXIST. STORM SEWER *
54	13+71.25	1.75	759.50	752.51	25.11	758.37	756.87	749.26	731.26	18.00	2.5	W18X40	25.61	7	-	-	EXIST. STORM SEWER *
55	13+78.75	1.75	759.70	752.58	25.22	758.55	757.05	749.33	731.33	18.00	2.5	W18X40	25.72	7	-	-	EXIST. STORM SEWER *
56	13+86.25	1.87	759.89	752.64	31.36	758.75	757.25	749.39	725.39	24.00	3.0	W21X55	31.86	8	-	-	EXIST. STORM SEWER *
57	13+93.75	2.00	760.08	752.71	31.75	758.95	754.70	749.46	722.46	27.00	3.0	W24X76	32.25	5	-	-	EXIST. STORM SEWER *
58	14+01.25	2.00	760.28	752.77	31.89	759.16	754.91	749.52	722.52	27.00	3.0	W24X76	32.39	5	-	-	EXIST. STORM SEWER *
59	14+08.75	2.00	760.55	752.82	32.08	759.40	755.15	749.57	722.57	27.00	3.0	W24X76	32.58	5	-	-	EXIST. STORM SEWER *
60	14+16.25	2.00	760.83	752.88	32.27	759.65	755.40	749.63	722.63	27.00	3.0	W24X76	32.77	6	-	-	EXIST. STORM SEWER *
61	14+23.75	2.00	761.10	752.93	32.46	759.89	755.64	749.68	722.68	27.00	3.0	W24X76	32.96	6	-	-	EXIST. STORM SEWER *
62	14+31.25	2.00	761.35	752.99	32.68	760.17	755.92	749.74	722.74	27.00	3.0	W24X76	33.18	6	-	-	EXIST. SANITARY SEW.**
63	14+38.75	2.00	761.60	753.04	32.91	760.45	756.20	749.79	722.79	27.00	3.0	W24X76	33.41	6	-	-	EXIST. STORM SEWER *
64	14+46.25	2.00	761.84	753.09	33.14	760.73	756.48	749.84	722.84	27.00	3.0	W24X76	33.64	6	-	-	EXIST. STORM SEWER *
65	14+53.75	2.00	762.12	753.15	33.37	761.02	756.77	749.90	722.90	27.00	3.0	W24X76	33.87	7	-	-	EXIST. STORM SEWER *
66	14+61.25	2.00	762.45	753.20	33.61	761.31	757.06	749.95	722.95	27.00	3.0	W24X76	34.11	7	-	-	EXIST. STORM SEWER *
67	14+68.75	2.00	762.77	753.25	33.85	761.60	757.35	750.00	723.00	27.00	3.0	W24X76	34.35	7	-	-	EXIST. STORM SEWER *
68	14+76.25	2.00	763.09	753.30	34.09	761.89	757.64	750.05	723.05	27.00	3.0	W24X76	34.59	7	-	-	EXIST. STORM SEWER *
69	14+83.75	1.73	763.37	753.35	28.33	762.18	757.93	750.10	729.10	21.00	2.5	HP14X73	28.83	16	754.18	-	EXIST. STORM SEWER *
70	14+91.25	1.73	763.64	753.41	28.56	762.47	758.22	750.16	729.16	21.00	2.5	HP14X73	29.06	16	754.47	-	EXIST. STORM SEWER *

NOTES

ALL DIMENSIONS AND ELEVATIONS GIVEN IN FEET.

FOUNDATION DRILLING LENGTH BASED ON ELEVATION 6" BELOW TOP OF SOLDIER PILE OR EXISTING GRADE (WHEN EXIST. GRADE IS MORE THAN 6" LOWER THAN THE TOP OF SOLDIER PILE) TO THE BOTTOM OF FOOTING.

* EXISTING STORM SEWER IS TO BE REMOVED PRIOR TO WALL CONSTRUCTION. VERIFY REMOVAL HAS TAKEN PLACE PRIOR TO FOUNDATION DRILLING.

** EXISTING 8" DIA. SANITARY SEWER IS TO BE ABANDONED. DRILL/CORE THROUGH AND CASE HOLE AS REQUIRED.

Addendum No. 05
ID 1060-33-84
Revised Sheet 2311
October 8, 2020

AMB
10/7/20

NO.	DATE	REVISION	BY
1	10/6/20	DATA TABLE REVISIONS	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-573

DRAWN BY WWR | PLANS CK'D. CAD

SOLDIER PILE DATA TABLE 1

SHEET 10

2311

SCALE = 4.00

8

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SOLDIER PILE DATA TABLE (CONT.)

PILE NO.	WALL R/L STA	OFFSET LEFT	APPROX. EXISTING GRADE	FINISHED GRADE AT WALL FACE	FOUNDATION DRILLING LENGTH	TOP OF WALL	TOP OF SOLDIER PILE	TOP OF FOOTING	BOTTOM OF FOOTING	FOOTING LENGTH	FOOTING DIAMETER	SOLDIER PILE SECTION	SOLDIER PILE LENGTH	NO. OF SHEAR STUDS REQ'D	TIEBACK ELEV 1	TIEBACK ELEV 2	KNOWN OBSTRUCTION
71	14+98.75	1.73	763.92	753.46	28.80	762.76	758.51	750.21	729.21	21.00	2.5	HP14X73	29.30	16	754.76	-	
72	15+06.25	1.73	764.20	753.52	29.07	763.08	758.83	750.27	729.27	21.00	2.5	HP14X73	29.57	16	755.08	-	
73	15+13.75	1.73	764.47	753.57	29.34	763.41	759.16	750.32	729.32	21.00	2.5	HP14X73	29.84	18	755.41	-	
74	15+21.25	1.73	764.74	753.62	29.61	763.74	759.49	750.37	729.37	21.00	2.5	HP14X73	30.11	18	755.74	-	
75	15+28.75	1.73	765.05	753.68	29.93	764.10	759.85	750.43	729.43	21.00	2.5	HP14X73	30.43	18	756.10	-	
76	15+36.25	1.73	765.38	753.73	30.28	764.51	760.26	750.48	729.48	21.00	2.5	HP14X73	30.78	20	756.51	-	
77	15+43.75	1.73	765.71	753.78	32.64	764.91	760.66	750.53	727.53	23.00	2.5	HP14X73	33.14	20	755.91	-	
78	15+51.25	1.73	766.06	753.83	33.00	765.33	761.08	750.58	727.58	23.00	2.5	HP14X73	33.50	20	756.33	-	
79	15+58.75	1.73	766.51	753.88	33.42	765.81	761.56	750.63	727.63	23.00	2.5	HP14X73	33.92	22	756.81	-	
80	15+66.25	1.73	766.95	753.94	33.85	766.28	762.03	750.69	727.69	23.00	2.5	HP14X73	34.35	22	757.28	-	
81	15+73.75	1.73	767.40	753.99	34.27	766.76	762.51	750.74	727.74	23.00	2.5	HP14X73	34.77	24	757.76	-	
82	15+81.25	1.73	767.80	754.04	34.76	767.31	763.06	750.79	727.79	23.00	2.5	HP14X73	35.26	24	758.31	-	
83	15+88.75	1.73	768.19	754.09	35.27	767.86	763.61	750.84	727.84	23.00	2.5	HP14X73	35.77	26	758.86	-	
84	15+96.25	1.73	768.58	754.14	35.78	768.42	764.17	750.89	727.89	23.00	2.5	HP14X73	36.28	26	759.42	-	
85	16+03.75	1.73	769.11	754.20	36.33	769.02	764.77	750.95	727.95	23.00	2.5	HP14X73	36.83	28	760.02	-	
86	16+11.25	1.73	769.74	754.25	33.93	769.68	765.43	751.00	731.00	20.00	2.5	HP14X73	34.43	28	760.68	753.68	
87	16+18.75	1.73	770.37	754.30	34.54	770.33	766.08	751.05	731.05	20.00	2.5	HP14X73	35.04	30	761.33	754.33	EXIST. STORM SEWER *
88	16+26.25	1.73	770.98	754.35	35.14	770.99	766.74	751.10	731.10	20.00	2.5	HP14X73	35.64	30	761.99	754.99	EXIST. STORM SEWER *
89	16+33.75	1.73	771.54	754.40	35.75	771.65	767.40	751.15	731.15	20.00	2.5	HP14X73	36.25	32	762.65	755.65	EXIST. STORM SEWER *
90	16+41.25	1.73	772.11	754.46	36.35	772.31	768.06	751.21	731.21	20.00	2.5	HP14X73	36.85	34	763.31	756.31	EXIST. STORM SEWER *
91	16+48.75	1.73	772.67	754.51	36.96	772.97	768.72	751.26	731.26	20.00	2.5	HP14X73	37.46	34	763.97	756.97	
92	16+56.25	1.73	773.31	754.56	37.57	773.63	769.38	751.31	731.31	20.00	2.5	HP14X73	38.07	36	764.63	757.63	
93	16+63.75	1.73	773.98	754.61	38.17	774.28	770.03	751.36	731.36	20.00	2.5	HP14X73	38.67	36	765.28	758.28	
94	16+71.25	1.73	774.64	754.66	38.78	774.94	770.69	751.41	731.41	20.00	2.5	HP14X73	39.28	38	765.94	758.94	
95	16+78.75	1.73	775.22	754.72	39.39	775.60	771.35	751.47	731.47	20.00	2.5	HP14X73	39.89	40	766.60	759.60	
96	16+86.25	1.73	775.75	754.77	39.99	776.26	772.01	751.52	731.52	20.00	2.5	HP14X73	40.49	40	767.26	760.26	PROP. SANITARY SEWER☆
97	16+93.04	1.73	776.24	754.82	41.53	776.85	772.60	751.57	730.57	21.00	2.5	HP14X73	42.03	42	767.85	760.85	PROP. SANITARY SEWER☆
98	16+99.04	1.73	776.67	754.85	41.99	777.34	773.09	751.60	730.60	21.00	2.5	HP14X73	42.49	42	768.34	761.34	
99	17+05.04	1.73	777.11	754.90	42.25	777.65	773.40	751.65	730.65	21.00	2.5	HP14X73	42.75	44	768.65	761.65	
100	17+11.04	1.73	777.32	754.94	42.61	778.05	773.80	751.69	730.69	21.00	2.5	HP14X73	43.11	44	769.05	762.05	
101	17+18.00	1.74	777.26	754.99	39.20	769.94	768.44	751.74	728.74	23.00	2.5	HP14X89	39.70	32	764.94	-	
102	17+25.08	1.74	777.20	755.04	39.15	769.94	768.44	751.79	728.79	23.00	2.5	HP14X89	39.65	32	764.94	-	
103	17+32.16	1.74	777.47	755.09	39.10	769.94	768.44	751.84	728.84	23.00	2.5	HP14X89	39.60	32	764.94	-	
104	17+39.25	1.74	777.74	755.14	39.05	769.94	768.44	751.89	728.89	23.00	2.5	HP14X89	39.55	32	764.94	-	
105	17+47.08	1.74	778.03	755.20	38.99	769.94	768.44	751.95	728.95	23.00	2.5	HP14X89	39.49	32	764.94	-	
106	17+54.16	1.74	778.22	755.25	38.94	769.94	768.44	752.00	729.00	23.00	2.5	HP14X89	39.44	32	764.94	-	
107	17+61.25	1.74	778.37	755.31	38.88	769.94	768.44	752.06	729.06	23.00	2.5	HP14X89	39.38	32	764.94	-	
108	17+68.33	1.74	778.51	755.36	38.83	769.94	768.44	752.11	729.11	23.00	2.5	HP14X89	39.33	32	764.94	-	
109	17+75.78	1.73	778.70	755.42	43.29	779.21	774.96	752.17	731.17	21.00	2.5	HP14X73	43.79	46	769.21	762.21	EXIST. STORM SEWER *
110	17+83.03	1.73	778.94	755.48	43.32	779.30	775.05	752.23	731.23	21.00	2.5	HP14X73	43.82	46	769.30	762.30	
111	17+90.28	1.73	779.09	755.53	43.38	779.42	775.17	752.28	731.28	21.00	2.5	HP14X73	43.88	46	769.42	762.42	
112	17+97.57	1.73	779.26	755.59	43.44	779.53	775.28	752.34	731.34	21.00	2.5	HP14X73	43.94	46	769.53	762.53	
113	18+05.07	1.73	779.39	755.65	43.46	779.61	775.36	752.40	731.40	21.00	2.5	HP14X73	43.96	46	769.61	762.61	
114	18+12.57	1.73	779.48	755.71	43.47	779.68	775.43	752.46	731.46	21.00	2.5	HP14X73	43.97	46	769.68	762.68	
115	18+20.07	1.73	779.56	755.76	43.49	779.75	775.50	752.51	731.51	21.00	2.5	HP14X73	43.99	46	769.75	762.75	
116	18+27.57	1.73	779.63	755.82	43.50	779.82	775.57	752.57	731.57	21.00	2.5	HP14X73	44.00	46	769.82	762.82	
117	18+35.07	1.73	779.72	755.88	43.51	779.90	775.65	752.63	731.63	21.00	2.5	HP14X73	44.01	46	769.90	762.90	
118	18+42.57	1.73	779.82	755.95	43.52	779.97	775.72	752.70	731.70	21.00	2.5	HP14X73	44.02	46	769.97	762.97	
119	18+50.07	1.73	779.91	756.01	43.53	780.04	775.79	752.76	731.76	21.00	2.5	HP14X73	44.03	46	770.04	763.04	
120	18+57.57	1.73	780.05	756.07	43.55	780.12	775.87	752.82	731.82	21.00	2.5	HP14X73	44.05	46	770.12	763.12	
121	18+65.07	1.73	780.18	756.13	43.56	780.19	775.94	752.88	731.88	21.00	2.5	HP14X73	44.06	46	770.19	763.19	
122	18+72.57	1.73	780.32	756.19	39.58	780.27	776.02	752.94	735.94	17.00	2.5	HP14X73	40.08	46	770.77	763.77	
123	18+80.07	1.73	780.46	756.25	39.59	780.34	776.09	753.00	736.00	17.00	2.5	HP14X73	40.09	46	770.84	763.84	
124	18+87.57	1.73	780.62	756.32	39.59	780.42	776.17	753.07	736.07	17.00	2.5	HP14X73	40.09	46	770.92	763.92	
125	18+95.07	1.73	780.78	756.38	39.62	780.50	776.25	753.13	736.13	17.00	2.5	HP14X73	40.12	46	771.00	764.00	
126	19+02.57	1.73	780.89	756.44	39.69	780.63	776.38	753.19	736.19	17.00	2.5	HP14X73	40.19	46	771.13	764.13	
127	19+10.07	1.73	780.89	756.50	39.78	780.77	776.52	753.25	736.25	17.00	2.5	HP14X73	40.28	46	771.27	764.27	
128	19+17.57	1.73	780.89	756.55	39.86	780.92	776.67	753.30	736.30	17.00	2.5	HP14X73	40.36	46	771.42	764.42	
129	19+25.07	1.73	780.89	756.61	39.95	781.06	776.81	753.36	736.36	17.00	2.5	HP14X73	40.45	46	771.56	764.56	
130	19+32.57	1.73	781.01	756.66	40.04	781.20	776.95	753.41	736.41	17.00	2.5	HP14X73	40.54	46	771.70	764.70	
131	19+40.07	1.73	781.12	756.71	40.12	781.34	777.09	753.46	736.46	17.00	2.5	HP14X73	40.62	46	771.84	764.84	
132	19+47.57	1.73	781.23	756.76	40.21	781.48	777.23	753.51	736.51	17.00	2.5	HP14X73	40.71	46	771.98	764.98	
133	19+55.07	1.73	781.33	756.81	40.30	781.61	777.36	753.56	736.56	17.00	2.5	HP14X73	40.80	48	772.11	765.11	
134	19+62.57	1.73	781.43	756.87	40.39	781.75	777.50	753.62	736.62	17.00	2.5	HP14X73	40.89	48	772.25	765.25	
135	19+70.07	1.73	781.52	756.92	40.47	781.89	777.64	753.67	736.67	17.00	2.5	HP14X73	40.97	48	772.39	765.39	
136	19+77.57	1.73	781.63	756.97	40.56	782.03	777.78	753.72	736.72	17.00	2.5	HP14X73	41.06	48	772.53	765.53	
137	19+85.07	1.73	781.76	757.02	40.65	782.17	777.92	753.77	736.77	17.00	2.5	HP14X73	41.15	48	772.67	765.67	
138	19+92.57	1.73	781.90	757.07	40.74	782.31	778.06	753.82	736.82	17.00	2.5	HP14X73	41.24	48	772.81	765.81	
139	20+00.07	1.73	782.03	757.12	40.83	782.45	778.20	753.87	736.87	17.00	2.5	HP14X73	41.33	48	772.95	765.95	
140	20+07.57	1.73	781.85	757.17	40.91	782.59	778.34	753.92	736.92	17.00	2.5	HP14X73	41.41	48	773.09	766.09	

STATE PROJECT NUMBER

1060-33-84

NOTES

ALL DIMENSIONS AND ELEVATIONS GIVEN IN FEET.

FOUNDATION DRILLING LENGTH BASED ON ELEVATION 6" BELOW TOP OF SOLDIER PILE OR EXISTING GRADE (WHEN EXIST. GRADE IS MORE THAN 6" LOWER THAN THE TOP OF SOLDIER PILE) TO THE BOTTOM OF FOOTING.

* EXISTING STORM SEWER IS TO BE REMOVED PRIOR TO WALL CONSTRUCTION. VERIFY REMOVAL HAS TAKEN PLACE PRIOR TO FOUNDATION DRILLING.

☆ PROPOSED SANITARY SEWER/CASING TO RUN BETWEEN INDICATED PILES. VERIFY LOCATION OF BORED SEWER CASING PRIOR TO FOUNDATION DRILLING. IF IT IS DETERMINED A CONFLICT EXISTS (DUE TO THE SEWER CASING BEING INSTALLED/BORED OUT OF ALIGNMENT), CONTACT THE STRUCTURES DESIGN SECTION FOR DIRECTION.

Addendum No. 05
ID 1060-33-84
Revised Sheet 2312
October 8, 2020

AMB
10/7/20

NO.	DATE	REVISION	BY
1	10/6/20	DATA TABLE REVISIONS	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-573

DRAWN BY | PLANS CK'D.
WWR | CAD

SOLDIER PILE DATA TABLE 2

SHEET 11

2312

SCALE = 4.00

8

8

STATE PROJECT NUMBER

1060-33-84

SOLDIER PILE DATA TABLE (CONT.)

PILE NO.	WALL R/L STA	OFFSET LEFT	APPROX. EXISTING GRADE	FINISHED GRADE AT WALL FACE	FOUNDATION DRILLING LENGTH	TOP OF WALL	TOP OF SOLDIER PILE	TOP OF FOOTING	BOTTOM OF FOOTING	FOOTING LENGTH	FOOTING DIAMETER	SOLDIER PILE SECTION	SOLDIER PILE LENGTH	NO. OF SHEAR STUDS REQ'D	TIEBACK ELEV 1	TIEBACK ELEV 2	KNOWN OBSTRUCTION
141	20+15.07	1.73	781.67	757.23	40.99	782.72	778.47	753.98	736.98	17.00	2.5	HP14X73	41.49	48	773.22	766.22	
142	20+22.57	1.73	781.49	757.28	41.07	782.86	778.61	754.03	737.03	17.00	2.5	HP14X73	41.57	48	773.36	766.36	
143	20+30.07	1.73	781.34	757.33	41.12	782.95	778.70	754.08	737.08	17.00	2.5	HP14X73	41.62	48	773.45	766.45	
144	20+37.57	1.73	781.21	757.39	41.15	783.04	778.79	754.14	737.14	17.00	2.5	HP14X73	41.65	48	773.54	766.54	
145	20+45.07	1.73	781.08	757.44	41.18	783.12	778.87	754.19	737.19	17.00	2.5	HP14X73	41.68	48	773.62	766.62	
146	20+52.57	1.73	781.09	757.49	41.19	783.18	778.93	754.24	737.24	17.00	2.5	HP14X73	41.69	48	773.68	766.68	
147	20+60.07	1.73	781.34	757.54	42.40	783.19	778.94	754.29	736.04	18.25	2.5	HP14X73	42.90	48	773.69	766.69	
148	20+67.57	1.73	781.60	757.59	42.37	783.21	778.96	754.34	736.09	18.25	2.5	HP14X73	42.87	48	773.71	766.71	
149	20+75.07	1.73	781.85	757.64	42.33	783.22	778.97	754.39	736.14	18.25	2.5	HP14X73	42.83	48	773.72	766.72	
150	20+82.57	1.73	782.05	757.69	42.22	783.16	778.91	754.44	736.19	18.25	2.5	HP14X73	42.72	48	773.66	766.66	
151	20+90.07	1.73	782.24	757.74	42.11	783.10	778.85	754.49	736.24	18.25	2.5	HP14X73	42.61	48	773.60	766.60	
152	20+97.57	1.73	782.44	757.79	43.25	783.04	778.79	754.54	735.04	19.50	2.5	HP14X73	43.75	48	773.04	766.04	
153	21+05.07	1.73	782.48	757.84	43.09	782.93	778.68	754.59	735.09	19.50	2.5	HP14X73	43.59	48	772.93	765.93	
154	21+12.57	1.73	782.46	757.90	42.91	782.80	778.55	754.65	735.15	19.50	2.5	HP14X73	43.41	48	772.80	765.80	
155	21+20.07	1.73	782.44	757.95	42.73	782.67	778.42	754.70	735.20	19.50	2.5	HP14X73	43.23	46	772.67	765.67	
156	21+27.57	1.73	782.40	758.00	45.27	782.52	781.02	754.75	735.25	19.50	2.5	HP14X73	45.77	52	774.02	767.02	
157	21+35.07	1.73	782.33	758.05	42.52	782.32	780.82	754.80	737.80	17.00	2.5	HP14X73	43.02	52	775.32	768.32	
158	21+42.57	1.73	782.26	758.11	42.26	782.12	780.62	754.86	737.86	17.00	2.5	HP14X73	42.76	52	775.12	768.12	
159	21+50.07	1.73	782.19	758.16	42.01	781.92	780.42	754.91	737.91	17.00	2.5	HP14X73	42.51	50	774.92	767.92	
160	21+57.57	1.73	782.25	758.21	41.70	781.66	780.16	754.96	737.96	17.00	2.5	HP14X73	42.20	50	774.66	767.66	
161	21+65.07	1.73	782.31	758.26	38.39	781.40	779.90	755.01	741.01	14.00	2.5	HP14X73	38.89	50	774.40	767.40	
162	21+72.57	1.73	782.45	758.31	38.03	781.10	779.60	755.06	741.06	14.00	2.5	HP14X73	38.53	48	774.10	767.10	
163	21+80.07	1.73	782.57	758.37	37.68	780.79	779.29	755.12	741.12	14.00	2.5	HP14X73	38.18	48	773.79	766.79	
164	21+87.57	1.73	782.68	758.42	37.32	780.49	778.99	755.17	741.17	14.00	2.5	HP14X73	37.82	48	773.49	766.49	
165	21+95.07	1.73	782.77	758.47	36.96	780.18	778.68	755.22	741.22	14.00	2.5	HP14X73	37.46	46	773.18	766.18	
166	22+02.57	1.73	782.91	758.52	36.61	779.87	778.37	755.27	741.27	14.00	2.5	HP14X73	37.11	46	772.87	765.87	
167	22+10.07	1.73	783.14	758.57	36.25	779.57	778.07	755.32	741.32	14.00	2.5	HP14X73	36.75	46	772.57	765.57	
168	22+17.57	1.73	783.05	758.61	35.84	779.20	777.70	755.36	741.36	14.00	2.5	HP14X73	36.34	44	772.20	765.20	
169	22+25.07	1.73	782.84	758.65	35.41	778.81	777.31	755.40	741.40	14.00	2.5	HP14X73	35.91	44	771.81	764.81	
170	22+32.57	1.73	782.60	758.70	34.97	778.42	776.92	755.45	741.45	14.00	2.5	HP14X73	35.47	42	771.42	764.42	
171	22+40.07	1.73	782.37	758.75	34.53	778.03	776.53	755.50	741.50	14.00	2.5	HP14X73	35.03	42	771.03	764.03	
172	22+47.57	1.73	782.14	758.79	34.09	777.64	776.14	755.54	741.54	14.00	2.5	HP14X73	34.59	40	770.64	763.64	
173	22+55.07	1.73	781.94	758.84	33.66	777.25	775.75	755.59	741.59	14.00	2.5	HP14X73	34.16	40	770.25	763.25	
174	22+62.57	1.73	781.75	758.89	33.22	776.86	775.36	755.64	741.64	14.00	2.5	HP14X73	33.72	38	769.86	762.86	
175	22+70.07	1.73	781.57	758.93	32.79	776.47	774.97	755.68	741.68	14.00	2.5	HP14X73	33.29	38	769.47	762.47	
176	22+77.57	1.73	781.41	758.98	32.35	776.08	774.58	755.73	741.73	14.00	2.5	HP14X73	32.85	38	769.08	762.08	
177	22+85.07	1.73	781.29	759.02	31.92	775.69	774.19	755.77	741.77	14.00	2.5	HP14X73	32.42	36	768.69	761.69	
178	22+92.57	1.73	781.17	759.07	31.48	775.30	773.80	755.82	741.82	14.00	2.5	HP14X73	31.98	36	768.30	761.30	
179	23+00.07	1.73	781.04	759.11	31.05	774.91	773.41	755.86	741.86	14.00	2.5	HP14X73	31.55	34	767.91	760.91	
180	23+07.57	1.73	780.44	759.13	30.63	774.52	773.02	755.88	741.88	14.00	2.5	HP14X73	31.13	34	767.52	760.52	
181	23+15.07	1.73	779.84	759.16	39.22	774.13	772.63	755.91	732.91	23.00	2.5	HP14X73	39.72	32	767.13	-	
182	23+22.57	1.73	779.24	759.18	38.80	773.74	772.24	755.93	732.93	23.00	2.5	HP14X73	39.30	32	766.74	-	
183	23+30.07	1.73	778.89	759.21	38.39	773.35	771.85	755.96	732.96	23.00	2.5	HP14X73	38.89	32	766.35	-	
184	23+37.57	1.73	778.66	759.23	37.98	772.96	771.46	755.98	732.98	23.00	2.5	HP14X73	38.48	30	765.96	-	
185	23+45.07	1.73	778.43	759.25	37.56	772.57	771.07	756.00	733.00	23.00	2.5	HP14X73	38.06	30	765.57	-	
186	23+52.57	1.73	778.23	759.27	35.16	772.18	770.68	756.02	735.02	21.00	2.5	HP14X73	35.66	28	765.18	-	
187	23+60.07	1.73	778.10	759.27	34.76	771.78	770.28	756.02	735.02	21.00	2.5	HP14X73	35.26	28	764.78	-	
188	23+67.57	1.73	777.96	759.27	34.37	771.39	769.89	756.02	735.02	21.00	2.5	HP14X73	34.87	28	764.39	-	
189	23+75.07	1.73	777.83	759.27	33.98	771.00	769.50	756.02	735.02	21.00	2.5	HP14X73	34.48	26	764.00	-	
190	23+82.57	1.73	777.73	759.27	33.59	770.61	769.11	756.02	735.02	21.00	2.5	HP14X73	34.09	26	763.61	-	
191	23+90.07	1.73	777.63	759.27	33.28	770.30	768.80	756.02	735.02	21.00	2.5	HP14X73	33.78	26	764.30	-	EXIST. STORM SEWER *
192	23+97.57	1.73	777.53	759.26	33.10	770.11	768.61	756.01	735.01	21.00	2.5	HP14X73	33.60	24	764.11	-	
193	24+05.07	1.73	777.42	759.25	32.92	769.92	768.42	756.00	735.00	21.00	2.5	HP14X73	33.42	24	763.92	-	
194	24+12.57	1.73	777.30	759.23	32.74	769.73	768.23	755.98	734.98	21.00	2.5	HP14X73	33.24	24	763.73	-	
195	24+20.07	1.73	777.18	759.22	32.57	769.54	768.04	755.97	734.97	21.00	2.5	HP14X73	33.07	24	763.54	-	
196	24+27.57	1.73	777.03	759.20	32.39	769.34	767.84	755.95	734.95	21.00	2.5	HP14X73	32.89	24	763.34	-	
197	24+35.07	1.73	776.83	759.19	32.21	769.15	767.65	755.94	734.94	21.00	2.5	HP14X73	32.71	22	763.15	-	
198	24+42.57	1.73	776.63	759.17	32.03	768.95	767.45	755.92	734.92	21.00	2.5	HP14X73	32.53	22	762.95	-	
199	24+50.07	1.73	776.40	759.16	31.91	768.82	767.32	755.91	734.91	21.00	2.5	HP14X73	32.41	22	762.82	-	
200	24+57.57	1.73	776.17	759.13	31.83	768.71	767.21	755.88	734.88	21.00	2.5	HP14X73	32.33	22	762.71	-	
201	24+65.07	1.73	775.94	759.11	31.75	768.61	767.11	755.86	734.86	21.00	2.5	HP14X73	32.25	22	762.61	-	
202	24+72.57	1.73	775.70	759.08	31.68	768.50	767.00	755.83	734.83	21.00	2.5	HP14X73	32.18	22	762.50	-	
203	24+80.07	1.73	775.45	759.05	31.60	768.40	766.90	755.80	734.80	21.00	2.5	HP14X73	32.10	22	762.40	-	
204	24+87.57	1.73	775.17	759.02	31.52	768.30	766.80	755.77	734.77	21.00	2.5	HP14X73	32.02	22	762.30	-	
205	24+95.07	1.73	774.90	759.00	31.45	768.20	766.70	755.75	734.75	21.00	2.5	HP14X73	31.95	22	762.20	-	
206	25+02.57	1.73	774.63	758.97	31.38	768.09	766.59	755.72	734.72	21.00	2.5	HP14X73	31.88	22	762.09	-	
207	25+10.07	1.73	774.36	758.92	31.32	767.99	766.49	755.67	734.67	21.00	2.5	HP14X73	31.82	22	761.99	-	
208	25+17.57	1.87	774.09	758.88	34.25	767.88	766.38	755.63	731.63	24.00	3.0	W21X55	34.75	11	-	-	
209	25+25.07	1.87	773.83	758.84	34.19	767.78	766.28	755.59	731.59	24.00	3.0	W21X55	34.69	10	-	-	
210	25+32.57	1.87	773.47	758.80	34.12	767.67	766.17	755.55	731.55	24.00	3.0	W21X55	34.62	10	-	-	

NOTES

ALL DIMENSIONS AND ELEVATIONS GIVEN IN FEET.

FOUNDATION DRILLING LENGTH BASED ON ELEVATION 6" BELOW TOP OF SOLDIER PILE OR EXISTING GRADE (WHEN EXIST. GRADE IS MORE THAN 6" LOWER THAN THE TOP OF SOLDIER PILE) TO THE BOTTOM OF FOOTING.

* EXISTING STORM SEWER IS TO BE REMOVED PRIOR TO WALL CONSTRUCTION. VERIFY REMOVAL HAS TAKEN PLACE PRIOR TO FOUNDATION DRILLING.

Addendum No. 05
ID 1060-33-84
Revised Sheet 2313
October 8, 2020

AMB
10/7/20

NO.	DATE	REVISION	BY
1	10/6/20	DATA TABLE REVISIONS	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-573

DRAWN BY: | PLANS CK'D.: CAD

SOLDIER PILE DATA TABLE 3

SHEET 12

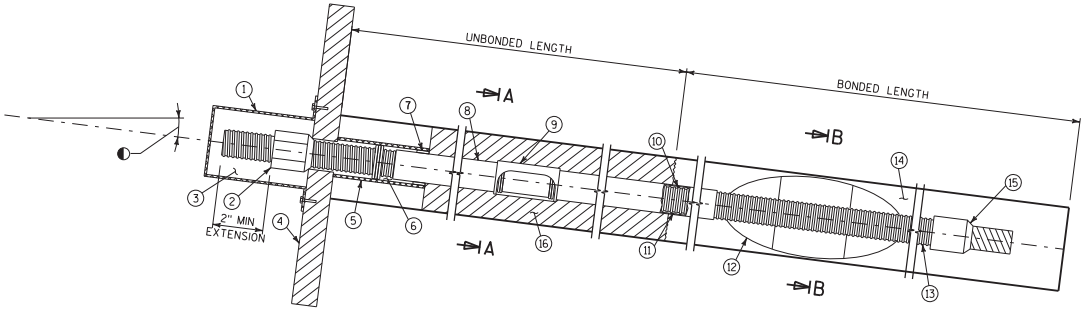
2313

SCALE = 4.00

8

8

STATE PROJECT NUMBER
1060-33-84



ENCAPSULATED TIEBACK

(BAR TENDON SHOWN, PRESTRESSED STEEL TENDONS MAY BE USED AS AN ALTERNATE)

LEGEND

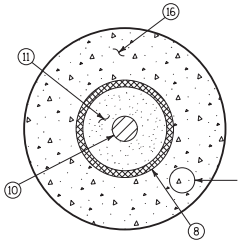
1. ANCHORAGE COVER
2. NUT
3. ANTICORROSION GREASE
4. BEARING PLATE
5. TRUMPET
6. ANTICORROSION GREASE
7. SEAL
8. SMOOTH PVC BOND BREAKER
9. PROTECTED BAR COUPLER
10. BAR TENDON
11. ENCAPSULATION GROUT
12. CENTRALIZERS
13. CORRUGATED PVC
14. ANCHOR GROUT
15. END CAP
16. GROUT

✳ BEARING PLATE SHALL BE DESIGNED BY THE CONTRACTOR IN ACCORDANCE WITH THE "TIEBACK ANCHORS" SPECIAL PROVISION

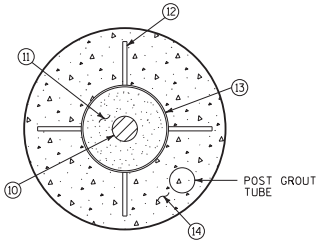
◐ ANGLE FROM VERTICAL, SEE TIEBACK ANCHOR DATA TABLES.

NOTE

⚠ HP 14x73/89 SHALL BE PRE-FABRICATED WITH ANCHORAGE DETAIL SHOWN BEFORE INSTALLATION INTO DRILLED CONCRETE FOOTING, BEARING PLATE, STIFFENERS, HSS 10" DIA TUBE, PIPE, AND ANCHOR MODIFICATIONS TO THE HP 14x73 ARE INCLUDED IN THE BID ITEM "TIEBACK ANCHORS".



SECTION A-A



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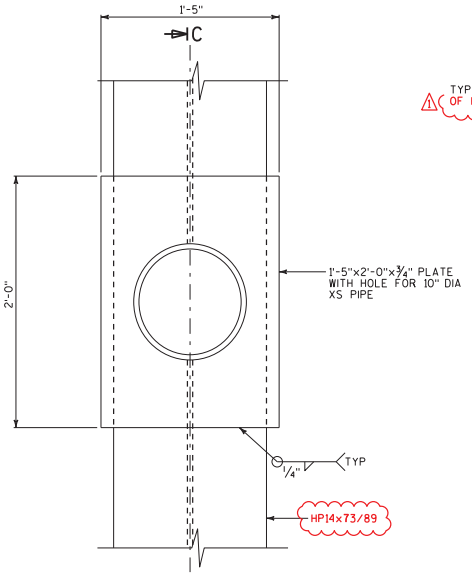
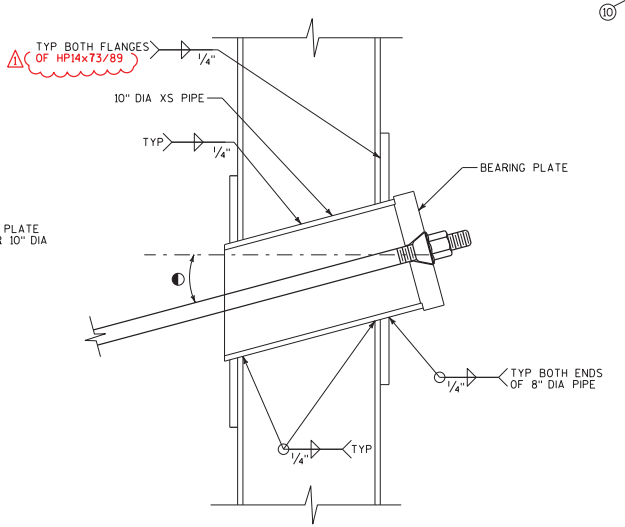
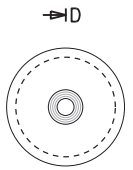


⚠ HP 14X73/89 ANCHOR DETAIL

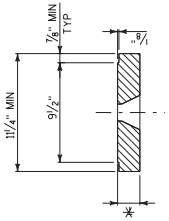
(BEARING PLATE, TENDON & ANCHOR HEAD NOT SHOWN FOR CLARITY)



SECTION C-C



PLAN



SECTION D-D

BEARING PLATE DETAILS

Addendum No. 05
ID 1060-33-84
Revised Sheet 2315
October 8, 2020

NO.	DATE	REVISION	BY
⚠1	10/6/20	H-PILE SHAPE NOTE	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-573

DRAWN BY WWR | PLANS CK'D. CAD

AMB 10/7/20

TIEBACK ANCHOR DETAILS

SHEET 14

2315

SCALE = 3.84

8

8

TIEBACK ANCHOR DATA TABLE

PILE NO.	TIEBACK NUMBER	◭ TIEBACK ELEVATION	TIEBACK VERTICAL ORIENTATION (DEGRESS)	** TIEBACK HORIZONTAL ORIENTATION (DEGRESS)	* ESTIMATED BONDED ANCHOR LENGTH (FT)	MINIMUM UNBONDED ANCHOR LENGTH (FT)	FACTORED DESIGN LOAD (KIPS)	LOCK OFF LOAD (KIPS)	PROOF TEST LOAD (KIPS)
69	1	754.18	20	90	20	15	85	57	97
70	2	754.47	20	90	20	15	85	57	97
71	3	754.76	20	90	20	15	85	57	97
72	4	755.08	20	90	20	15	85	57	97
73	5	755.41	20	90	20	15	85	57	97
74	6	755.74	20	90	20	15	85	57	97
75	7	756.10	20	90	20	15	85	57	97
76	8	756.51	20	90	20	15	85	57	97
77	9	755.91	22.5	90	29	15	125	88	143
78	10	756.33	22.5	90	29	15	125	88	143
79	11	756.81	22.5	90	29	15	125	88	143
80	12	757.28	22.5	90	29	15	125	88	143
81	13	757.76	22.5	90	29	15	125	88	143
82	14	758.31	22.5	90	29	15	125	88	143
83	15	758.86	22.5	90	29	15	125	88	143
84	16	759.42	22.5	90	29	15	125	88	143
85	17	760.02	22.5	90	29	15	125	88	143
86	18	760.68	30	90	33	15	145	116	166
86	19	753.68	30	90	27	15	115	92	132
87	20	761.33	30	90	33	15	145	116	166
87	21	754.33	30	90	27	15	115	92	132
88	22	761.99	30	90	33	15	145	116	166
88	23	754.99	30	90	27	15	115	92	132
89	24	762.65	30	90	33	15	145	116	166
89	25	755.65	30	90	27	15	115	92	132
90	26	763.31	30	90	33	15	145	116	166
90	27	756.31	30	90	27	15	115	92	132
91	28	763.97	30	90	33	15	145	116	166
91	29	756.97	30	90	27	15	115	92	132
92	30	764.63	30	90	33	15	145	116	166
92	31	757.63	30	90	27	15	115	92	132
93	32	765.28	30	90	33	15	145	116	166
93	33	758.28	30	90	27	15	115	92	132
94	34	765.94	30	90	33	15	145	116	166
94	35	758.94	30	90	27	15	115	92	132
95	36	766.60	30	90	33	15	145	116	166
95	37	759.60	30	90	27	15	115	92	132
96	38	767.26	30	92.5	33	15	145	116	166
96	39	760.26	30	92.5	27	15	115	92	132
97	40	767.85	30	90	24	15	105	84	120
97	41	760.85	30	90	23	15	100	80	115
98	42	768.34	30	90	24	15	105	84	120
98	43	761.34	30	90	23	15	100	80	115
99	44	768.65	30	90	24	15	105	84	120
99	45	761.65	30	90	23	15	100	80	115
100	46	769.05	30	90	24	15	105	84	120
100	47	762.05	30	90	23	15	100	80	115
101	48	764.94	15	90	25	15	110	66	126
102	49	764.94	15	90	25	15	110	66	126
103	50	764.94	15	90	25	15	110	66	126
104	51	764.94	15	90	25	15	110	66	126
105	52	764.94	15	90	25	15	110	66	126
106	53	764.94	15	90	25	15	110	66	126
107	54	764.94	15	90	25	15	110	66	126
108	55	764.94	15	90	25	15	110	66	126
109	56	769.21	20	90	30	15	130	87	149
109	57	762.21	20	90	24	15	105	70	120
110	58	769.30	20	90	30	15	130	87	149
110	59	762.30	20	90	24	15	105	70	120
111	60	769.42	20	90	30	15	130	87	149
111	61	762.42	20	90	24	15	105	70	120
112	62	769.53	20	90	30	15	130	87	149
112	63	762.53	20	90	24	15	105	70	120
113	64	769.61	20	90	30	15	130	87	149
113	65	762.61	20	90	24	15	105	70	120

PILE NO.	TIEBACK NUMBER	◭ TIEBACK ELEVATION	TIEBACK VERTICAL ORIENTATION (DEGRESS)	** TIEBACK HORIZONTAL ORIENTATION (DEGRESS)	* ESTIMATED BONDED ANCHOR LENGTH (FT)	MINIMUM UNBONDED ANCHOR LENGTH (FT)	FACTORED DESIGN LOAD (KIPS)	LOCK OFF LOAD (KIPS)	PROOF TEST LOAD (KIPS)
114	66	769.68	20	90	30	15	130	87	149
114	67	762.68	20	90	24	15	105	70	120
115	68	769.75	20	90	30	15	130	87	149
115	69	762.75	20	90	24	15	105	70	120
116	70	769.82	20	90	30	15	130	87	149
116	71	762.82	20	90	24	15	105	70	120
117	72	769.90	20	90	30	15	130	87	149
117	73	762.90	20	90	24	15	105	70	120
118	74	769.97	20	90	30	15	130	87	149
118	75	762.97	20	90	24	15	105	70	120
119	76	770.04	20	90	30	15	130	87	149
119	77	763.04	20	90	24	15	105	70	120
120	78	770.12	20	90	30	15	130	87	149
120	79	763.12	20	90	24	15	105	70	120
121	80	770.19	20	90	30	15	130	87	149
121	81	763.19	20	90	24	15	105	70	120
122	82	770.77	15	90	33	16	145	87	166
122	83	763.77	15	90	35	15	150	90	172
123	84	770.84	15	90	33	16	145	87	166
123	85	763.84	15	90	35	15	150	90	172
124	86	770.92	15	90	33	16	145	87	166
124	87	763.92	15	90	35	15	150	90	172
125	88	771.00	15	90	33	16	145	87	166
125	89	764.00	15	90	35	15	150	90	172
126	90	771.13	15	90	33	16	145	87	166
126	91	764.13	15	90	35	15	150	90	172
127	92	771.27	15	90	33	16	145	87	166
127	93	764.27	15	90	35	15	150	90	172
128	94	771.42	15	90	33	16	145	87	166
128	95	764.42	15	90	35	15	150	90	172
129	96	771.56	15	90	33	16	145	87	166
129	97	764.56	15	90	35	15	150	90	172
130	98	771.70	15	90	33	16	145	87	166
130	99	764.70	15	90	35	15	150	90	172
131	100	771.84	15	90	33	16	145	87	166
131	101	764.84	15	90	35	15	150	90	172
132	102	771.98	15	90	33	17	145	87	166
132	103	764.98	15	90	35	15	150	90	172
133	104	772.11	15	90	33	17	145	87	166
133	105	765.11	15	90	35	15	150	90	172
134	106	772.25	15	90	33	17	145	87	166
134	107	765.25	15	90	35	15	150	90	172
135	108	772.39	15	90	33	17	145	87	166
135	109	765.39	15	90	35	15	150	90	172
136	110	772.53	15	90	33	17	145	87	166
136	111	765.53	15	90	35	15	150	90	172
137	112	772.67	15	90	33	17	145	87	166
137	113	765.67	15	90	35	15	150	90	172
138	114	772.81	15	90	33	17	145	87	166
138	115	765.81	15	90	35	15	150	90	172
139	116	772.95	15	90	33	17	145	87	166
139	117	765.95	15	90	35	15	150	90	172
140	118	773.09	15	90	33	17	145	87	166
140	119	766.09	15	90	35	15	150	90	172
141	120	773.22	15	90	33	17	145	87	166
141	121	766.22	15	90	35	15	150	90	172
142	122	773.36	15	90	33	17	145	87	166
142	123	766.36	15	90	35	15	150	90	172
143	124	773.45	15	90	33	17	145	87	166
143	125	766.45	15	90	35	15	150	90	172
144	126	773.54	15	90	33	17	145	87	166
144	127	766.54	15	90	35	15	150	90	172
145	128	773.62	15	90	33	17	145	87	166
145	129	766.62	15	90	35	15	150	90	172
146	130	773.68	15	90	33	17	145	87	166
146	131	766.68	15	90	35	15	150	90	172

LEGEND

* ESTIMATED BONDED ANCHOR LENGTH BASED ON 8" DIA. ANCHOR AND AN ASSUMED UNIFORM, ULTIMATE BOND STRESS OF 2.0 KSF (PHI=1.0). MINIMUM BONDED ANCHOR LENGTH = 15'-0"

◭ ELEVATION GIVEN AT FRONT FACE OF SOLDIER PILE

** HORIZONTAL ORIENTATION IS MEASURED FROM WALL R/L IN COUNTER-CLOCKWISE DIRECTION

☆ TOTAL ANCHOR LENGTH (UNBONDED+BONDED) AT PROPOSED VERTICAL ORIENTATION LIMITED TO:
48'-0" AT SOLDIER PILES 69 THRU 76
49'-0" AT SOLDIER PILES 77 THRU 85
52'-0" AT SOLDIER PILES 86 THRU 96
IN ORDER TO MAINTAIN ADEQUATE CLEARANCE FROM PROPOSED SANITARY SEWER.

Addendum No. 05
ID 1060-33-84
Revised Sheet 2316
October 8, 2020

STATE PROJECT NUMBER
1060-33-573

AMB
10/7/20

NO.	DATE	REVISION	BY
1	10/6/20	DATA TABLE REVISIONS	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-573

DRAWN BY WWR | PLANS CK'D. CAD

TIEBACK ANCHOR DATA TABLE 1

SHEET 15

2316

SCALE = 4.00

8

8

STATE PROJECT NUMBER

1060-33-84

TIEBACK ANCHOR DATA TABLE (CONT.)

PILE NO.	TIEBACK NUMBER	⚠ TIEBACK ELEVATION	TIEBACK VERTICAL ORIENTATION (DEGRESS)	** TIEBACK HORIZONTAL ORIENTATION (DEGRESS)	* ESTIMATED BONDED ANCHOR LENGTH (FT)	MINIMUM UNBONDED ANCHOR LENGTH (FT)	FACTORED DESIGN LOAD (KIPS)	LOCK OFF LOAD (KIPS)	PROOF TEST LOAD (KIPS)
⚠ 147	132	773.69	15	90	33	17	145	87	166
147	133	766.69	15	90	35	15	150	90	172
148	134	773.71	15	90	33	17	145	87	166
148	135	766.71	15	90	35	15	150	90	172
149	136	773.72	15	90	33	17	145	87	166
149	137	766.72	15	90	35	15	150	90	172
150	138	773.66	15	90	33	17	145	87	166
150	139	766.66	15	90	35	15	150	90	172
151	140	773.60	15	90	33	17	145	87	166
151	141	766.60	15	90	35	15	150	90	172
152	142	773.04	15	90	33	17	145	87	166
152	143	766.04	15	90	30	15	130	78	149
153	144	772.93	15	90	33	16	145	87	166
153	145	765.93	15	90	30	15	130	78	149
154	146	772.80	15	90	33	16	145	87	166
154	147	765.80	15	90	30	15	130	78	149
155	148	772.67	15	90	33	16	145	87	166
155	149	765.67	15	90	30	15	130	78	149
156	150	774.02	15	90	33	16	145	87	166
156	151	767.02	15	90	30	15	130	78	149
157	152	775.32	15	90	25	18	110	66	126
157	153	768.32	15	90	21	15	90	54	103
158	154	775.12	15	90	25	18	110	66	126
158	155	768.12	15	90	21	15	90	54	103
159	156	774.92	15	90	25	18	110	66	126
159	157	767.92	15	90	21	15	90	54	103
160	158	774.66	15	90	25	18	110	66	126
160	159	767.66	15	90	21	15	90	54	103
161	160	774.40	15	90	24	17	105	63	120
161	161	767.40	15	90	19	15	80	48	92
162	162	774.10	15	90	24	17	105	63	120
162	163	767.10	15	90	19	15	80	48	92
163	164	773.79	15	90	24	17	105	63	120
163	165	766.79	15	90	19	15	80	48	92
164	166	773.49	15	90	24	16	105	63	120
164	167	766.49	15	90	19	15	80	48	92
165	168	773.18	15	90	24	16	105	63	120
165	169	766.18	15	90	19	15	80	48	92
166	170	772.87	15	90	24	16	105	63	120
166	171	765.87	15	90	19	15	80	48	92
167	172	772.57	15	90	24	16	105	63	120
167	173	765.57	15	90	19	15	80	48	92
168	174	772.20	15	90	24	15	105	63	120
168	175	765.20	15	90	19	15	80	48	92
169	176	771.81	15	90	24	15	105	63	120
169	177	764.81	15	90	19	15	80	48	92
170	178	771.42	15	90	24	15	105	63	120
170	179	764.42	15	90	19	15	80	48	92
171	180	771.03	15	90	24	15	105	63	120
171	181	764.03	15	90	19	15	80	48	92
172	182	770.64	15	90	24	15	105	63	120
172	183	763.64	15	90	19	15	80	48	92
173	184	770.25	15	90	24	15	105	63	120
173	185	763.25	15	90	19	15	80	48	92
174	186	769.86	15	90	24	15	105	63	120
174	187	762.86	15	90	19	15	80	48	92
175	188	769.47	15	90	24	15	105	63	120
175	189	762.47	15	90	19	15	80	48	92
176	190	769.08	15	90	24	15	105	63	120
176	191	762.08	15	90	19	15	80	48	92

PILE NO.	TIEBACK NUMBER	⚠ TIEBACK ELEVATION	TIEBACK VERTICAL ORIENTATION (DEGRESS)	** TIEBACK HORIZONTAL ORIENTATION (DEGRESS)	* ESTIMATED BONDED ANCHOR LENGTH (FT)	MINIMUM UNBONDED ANCHOR LENGTH (FT)	FACTORED DESIGN LOAD (KIPS)	LOCK OFF LOAD (KIPS)	PROOF TEST LOAD (KIPS)
177	192	768.69	15	90	24	15	105	63	120
177	193	761.69	15	90	19	15	80	48	92
178	194	768.30	15	90	24	15	105	63	120
178	195	761.30	15	90	19	15	80	48	92
179	196	767.91	15	90	24	15	105	63	120
179	197	760.91	15	90	19	15	80	48	92
180	198	767.52	15	90	24	15	105	63	120
180	199	760.52	15	90	19	15	80	48	92
181	200	767.13	15	90	25	15	110	66	126
182	201	766.74	15	90	25	15	110	66	126
183	202	766.35	15	90	25	15	110	66	126
184	203	765.96	15	90	25	15	110	66	126
185	204	765.57	15	90	25	15	110	66	126
186	205	765.18	15	90	13	15	55	33	63
187	206	764.78	15	90	13	15	55	33	63
188	207	764.39	15	90	13	15	55	33	63
189	208	764.00	15	90	13	15	55	33	63
190	209	763.61	15	90	13	15	55	33	63
191	210	764.30	15	90	11	15	45	27	51
192	211	764.11	15	90	11	15	45	27	51
193	212	763.92	15	90	11	15	45	27	51
194	213	763.73	15	90	11	15	45	27	51
195	214	763.54	15	90	11	15	45	27	51
196	215	763.34	15	90	11	15	45	27	51
197	216	763.15	15	90	11	15	45	27	51
198	217	762.95	15	90	11	15	45	27	51
199	218	762.82	15	90	11	15	45	27	51
200	219	762.71	15	90	11	15	45	27	51
201	220	762.61	15	90	11	15	45	27	51
202	221	762.50	15	90	11	15	45	27	51
203	222	762.40	15	90	11	15	45	27	51
204	223	762.30	15	90	11	15	45	27	51
205	224	762.20	15	90	11	15	45	27	51
206	225	762.09	15	90	11	15	45	27	51
207	226	761.99	15	90	11	15	45	27	51

LEGEND

* ESTIMATED BONDED ANCHOR LENGTH BASED ON 8" DIA. ANCHOR AND AN ASSUMED UNIFORM, ULTIMATE BOND STRESS OF 2.0 KSF (PHI=1.0). MINIMUM BONDED ANCHOR LENGTH = 15'-0"

⚠ ELEVATION GIVEN AT FRONT FACE OF SOLDIER PILE

** HORIZONTAL ORIENTATION IS MEASURED FROM WALL R/L IN COUNTER-CLOCKWISE DIRECTION

Addendum No. 05
ID 1060-33-84
Revised Sheet 2317
October 8, 2020

AMB
10/7/20

NO.	DATE	REVISION	BY
⚠ 1	10/6/20	DATA TABLE REVISIONS	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-573

DRAWN BY | WWR | PLANS CK'D. | CAD

TIEBACK ANCHOR DATA TABLE 2

SHEET 16

2317

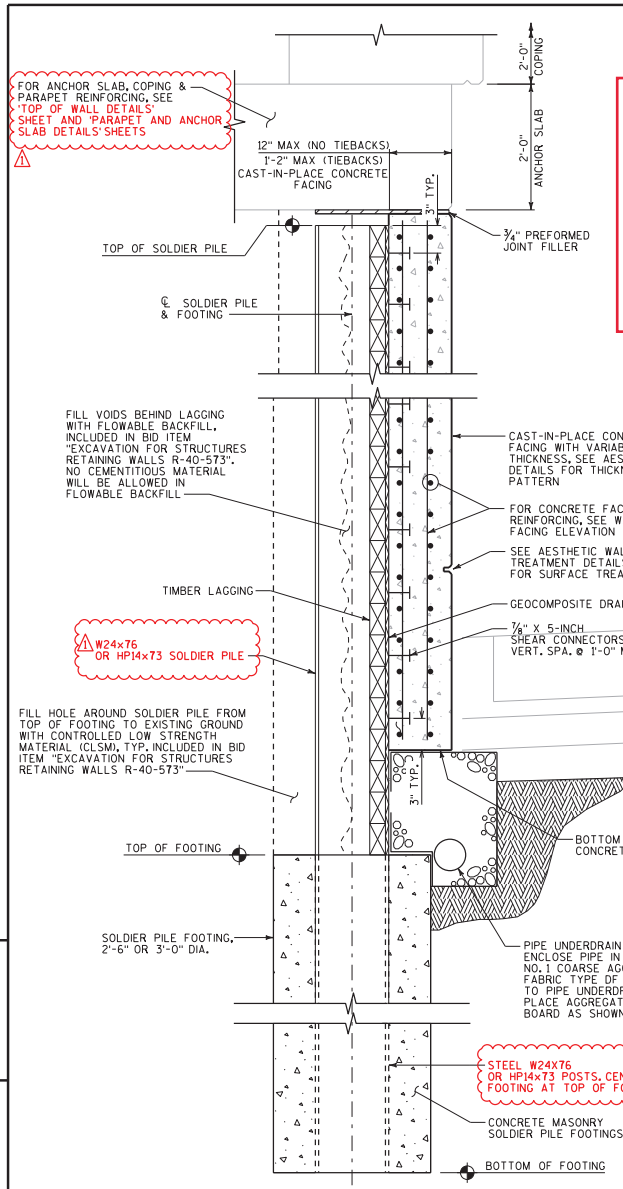
SCALE = 4.00

8

8

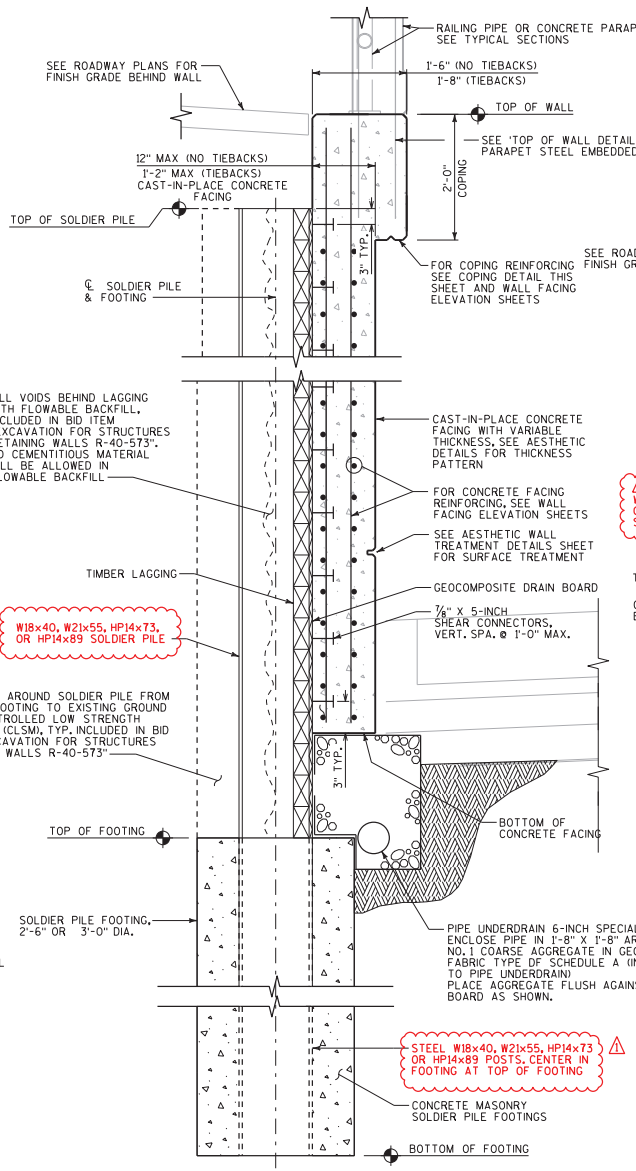
Addendum No. 05
ID 1060-33-84
Revised Sheet 2318
October 8, 2020

STATE PROJECT NUMBER
1060-33-84



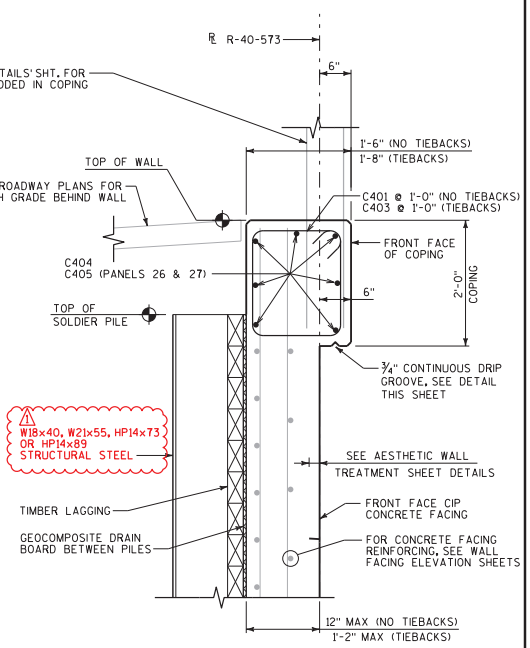
SOLDIER PILE AND WALL SECTION AT ANCHOR SLABS

(WALL STA. 13+90 TO 17+14.08)
(WALL STA. 17+72.24 TO 21+23.83)



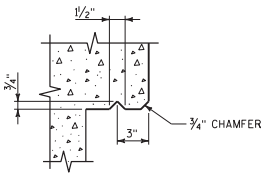
SOLDIER PILE AND WALL SECTION (NO ANCHOR SLABS)

(WALL STA. 9+70 TO 13+60)
(WALL STA. 17+14.08 TO 17+72.24)
(WALL STA. 21+23.83 TO 29+93.83)



COPING DETAIL

(WALL STA. 9+70 TO 13+60)
(WALL STA. 17+14.08 TO 17+72.24)
(WALL STA. 21+23.83 TO 29+93.83)



¾" CONTINUOUS DRIP GROOVE DETAIL

TERMINATE 2'-0" FROM ENDS OF WALL

NO.	DATE	REVISION	BY
1	10/6/20	UPDATE NOTES	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-573

DRAWN BY: WWR | PLANS CK'D.: CAD

COPING AND WALL FACING DETAILS 1

SHEET 17

2318

AMB 10/7/20

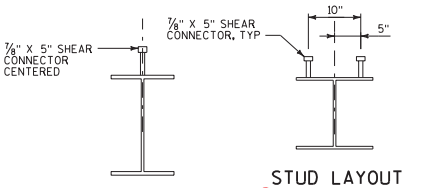
SCALE = 3.84

8

8

STATE PROJECT NUMBER
1060-33-84

Addendum No. 05
ID 1060-33-84
Revised Sheet 2320
October 8, 2020

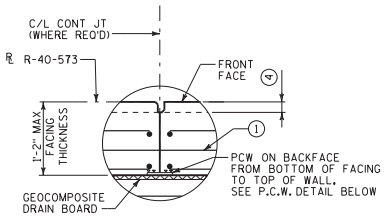


STUD LAYOUT

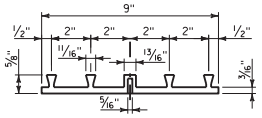
⚠ W18X40, W21X55, W24X76 (WITHOUT TIEBACKS)

STUD LAYOUT

⚠ HP14X73 & HP14X89 (WITH TIEBACKS)



CONTRACTION JOINT DETAIL

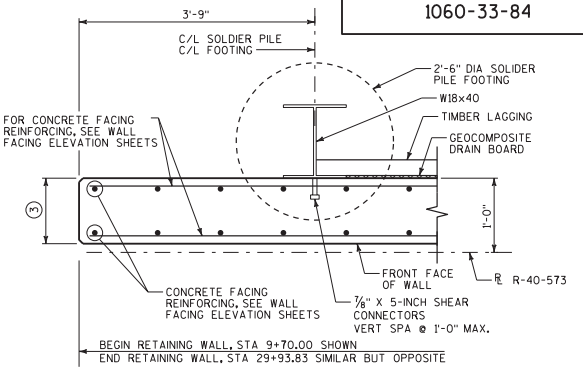


P.C.W. "TYPE B" DETAIL

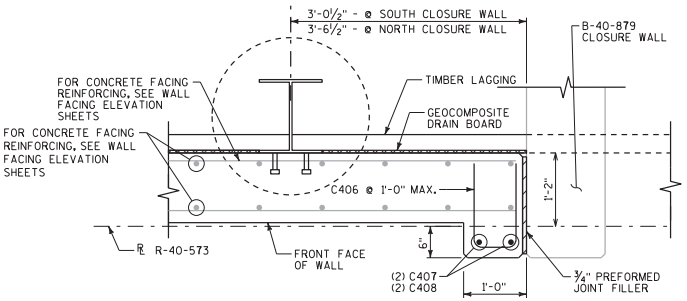
(POLYVINYL CHLORIDE WATERSTOP)

(INCLUDED IN BID ITEM "CONCRETE MASONRY RETAINING WALLS")

P.C.W. SHALL BE BUTT SPLICED AT ANY INTERSECTIONS BY USING A HEATED SPLICING IRON. HOLD P.C.W. FLUSH WITH CONCRETE. SEAL ALL VERTICAL ENDS OF P.C.W. WITH NON-STAINING BITUMINOUS JOINT SEALER.

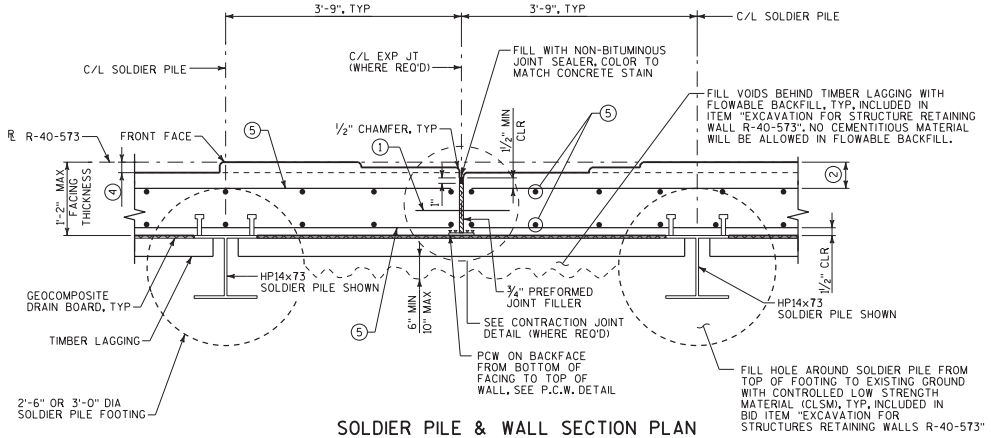


SECTION AT BEGINNING/END OF WALL



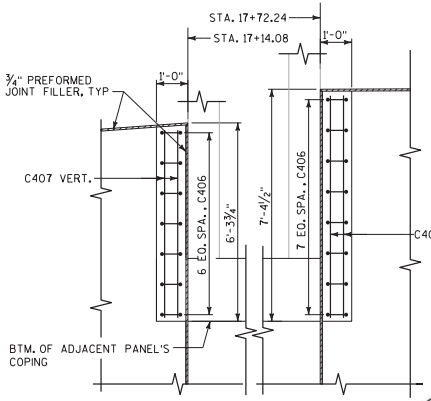
SECTION AT VERTICAL COPING

SECTION SHOWN AT SOUTH CLOSURE WALL, SIMILAR/OPPOSITE AT NORTH



SOLDIER PILE & WALL SECTION PLAN

(SEE GENERAL PLAN & ELEVATION SHEETS FOR LOCATION OF CONTRACTION & EXPANSION JOINTS)



VERTICAL COPING DETAIL

(ANCHOR SLAB NOT SHOWN FOR CLARITY)

NOTES

1. 3/4" DIA X 1'-6" SMOOTH EPOXY COATED DOWELS PLACED AT 2'-0" CENTERS MID-DEPTH IN THE WALL. DOWELS SHALL BE LIGHTLY COATED WITH A DEBONDING SURFACE TREATMENT OVER 1/2 THE DOWEL LENGTH. EMBED 9" INTO ADJACENT WALL. DOWELS INCLUDED IN THE BID ITEM "CONCRETE MASONRY RETAINING WALLS".
2. 4 1/2" CLEAR FROM MAX WALL THICKNESS
3. 10" MIN. / 12" MAX.
4. SEE AESTHETIC WALL TREATMENT DETAILS SHEET.
5. SEE COPING AND WALL ELEVATION SHEETS FOR REINFORCEMENT BAR MARKS.

AMB 10/7/20

NO.	DATE	REVISION	BY
⚠1	10/6/20	SOLDIER PILE SHAPES	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-573

DRAWN BY: WWR | PLANS CK'D.: CAD

COPING AND WALL FACING DETAILS 3

SHEET 19

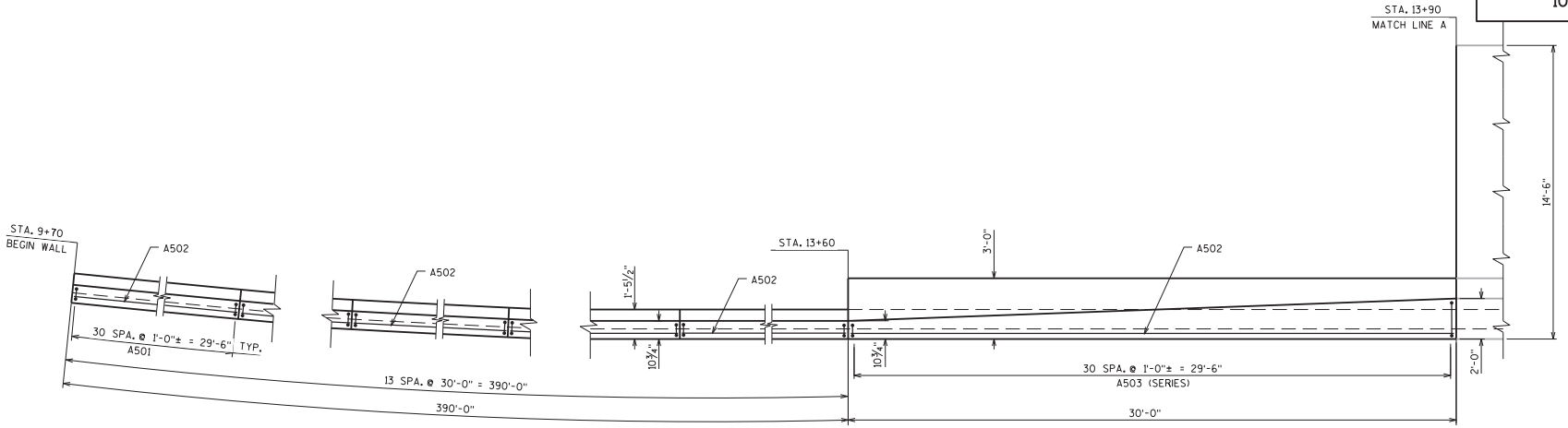
2320

SCALE = 3.84

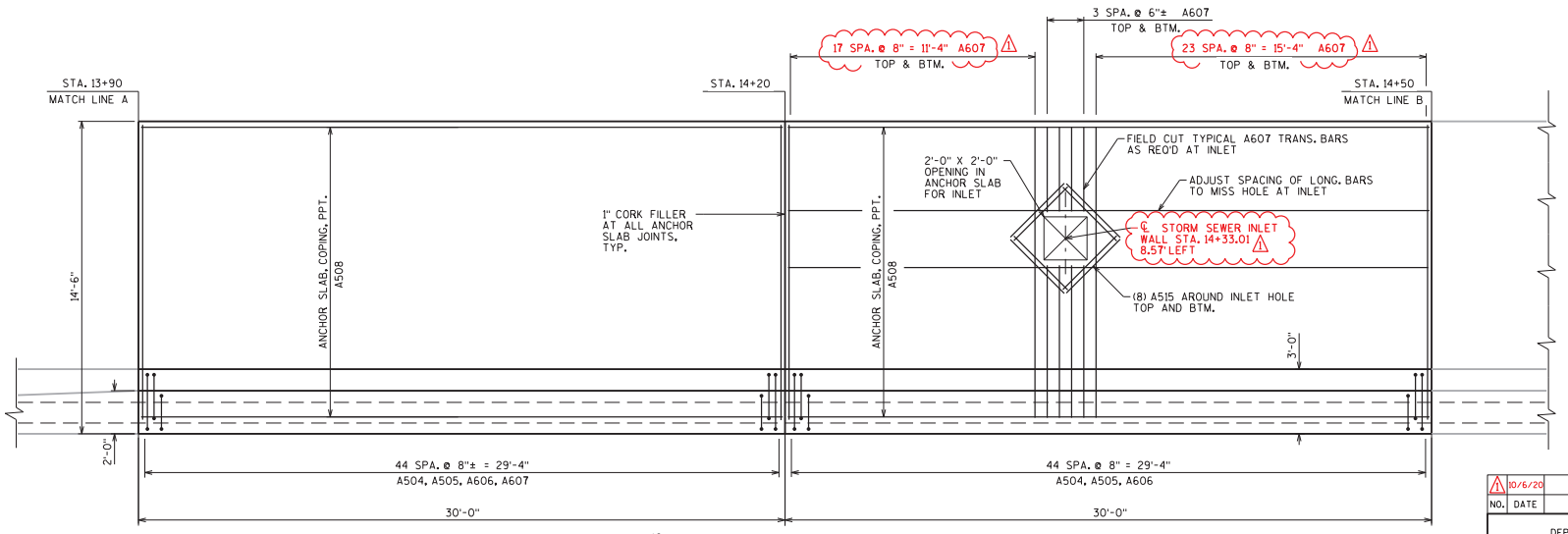
8

8

STATE PROJECT NUMBER
1060+33-84



PARTIAL PLAN



PARTIAL PLAN

Addendum No. 05
ID 1060-33-84
Revised Sheet 2328
October 8, 2020

NO.	DATE	REVISION	BY
1	10/6/20	STORM SEWER INLET LOCATION	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-573

DRAWN BY	PLANS CK'D.
WWR	CAD

AMB
10/7/20

PARAPET AND ANCHOR SLAB DETAILS 1

SHEET 27

2328

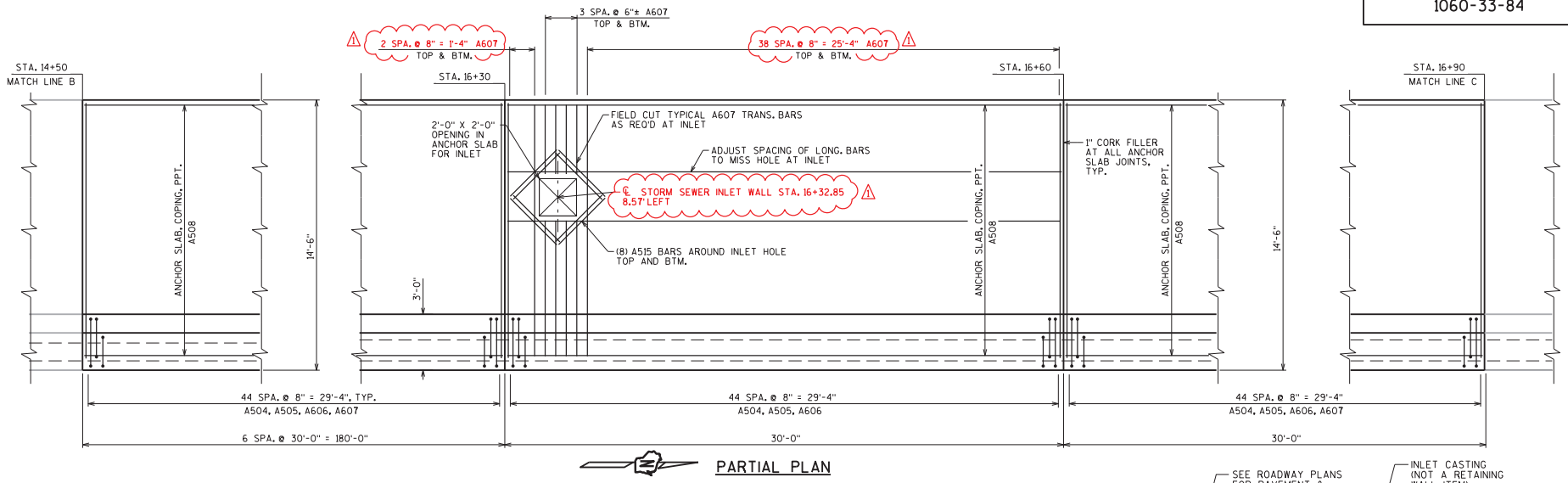
SCALE = 2.75

8

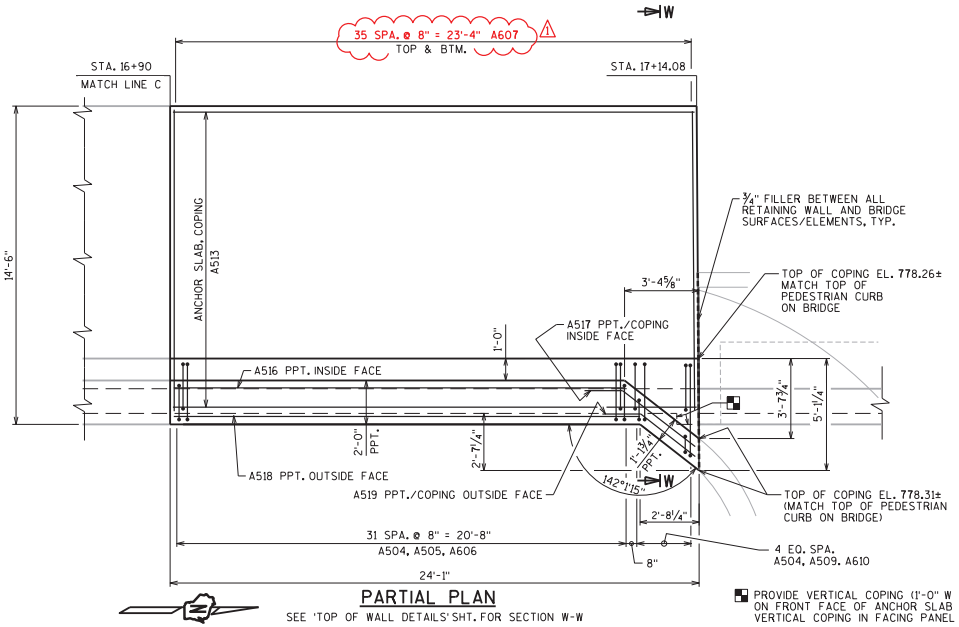
8

STATE PROJECT NUMBER

1060-33-84

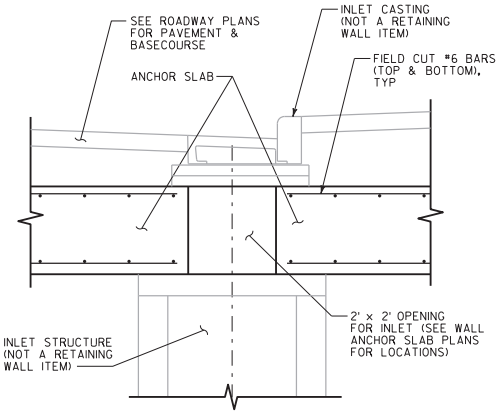


PARTIAL PLAN



PARTIAL PLAN

SEE 'TOP OF WALL DETAILS' SHT. FOR SECTION W-W



ANCHOR SLAB/INLET DETAIL

PROVIDE VERTICAL COPING (1'-0" W X 6" D X 24" H) ON FRONT FACE OF ANCHOR SLAB TO MATCH VERTICAL COPING IN FACING PANEL BELOW

Addendum No. 05
ID 1060-33-84
Revised Sheet 2329
October 8, 2020

10/7/20

NO.	DATE	REVISION	BY
1	10/6/20	STORM SEWER INLET LOCATION	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-573

DRAWN BY WWR | PLANS CK'D. CAD

PARAPET AND ANCHOR SLAB DETAILS 2

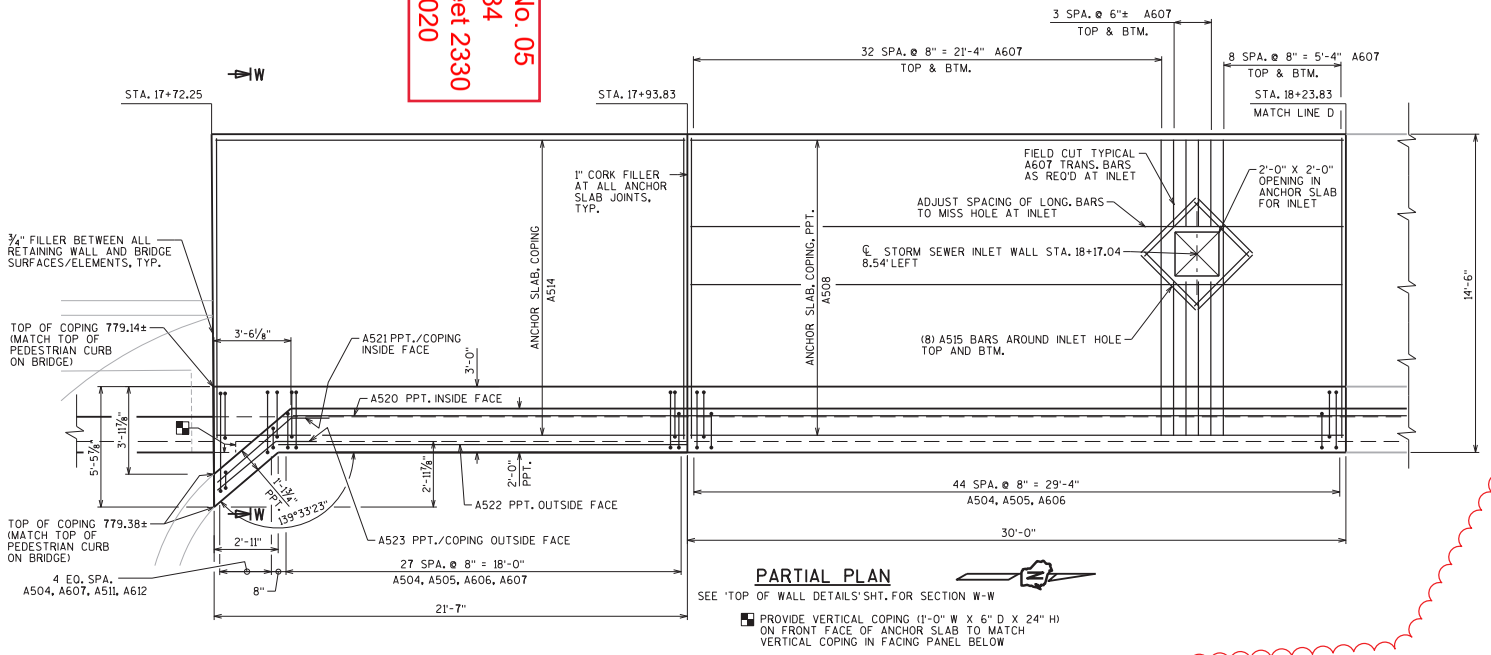
SHEET 28

2329

SCALE = 2.75

Addendum No. 05
ID 1060-33-84
Revised Sheet 2330
October 8, 2020

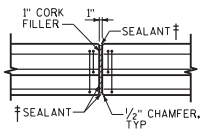
STATE PROJECT NUMBER
1060-33-84



PARTIAL PLAN

SEE 'TOP OF WALL DETAILS' SHT. FOR SECTION W-W

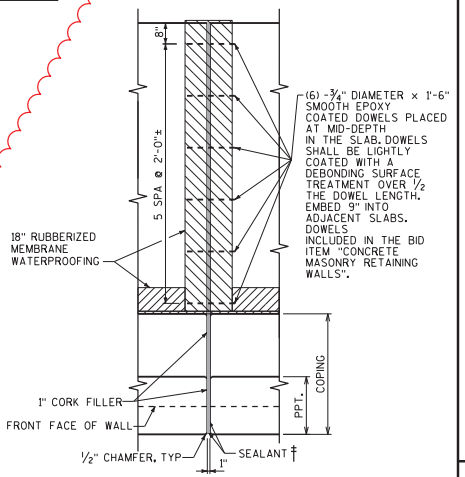
■ PROVIDE VERTICAL COPING (1'-0" W X 6" D X 24" H) ON FRONT FACE OF ANCHOR SLAB TO MATCH VERTICAL COPING IN FACING PANEL BELOW



PARAPET EXPANSION JOINT

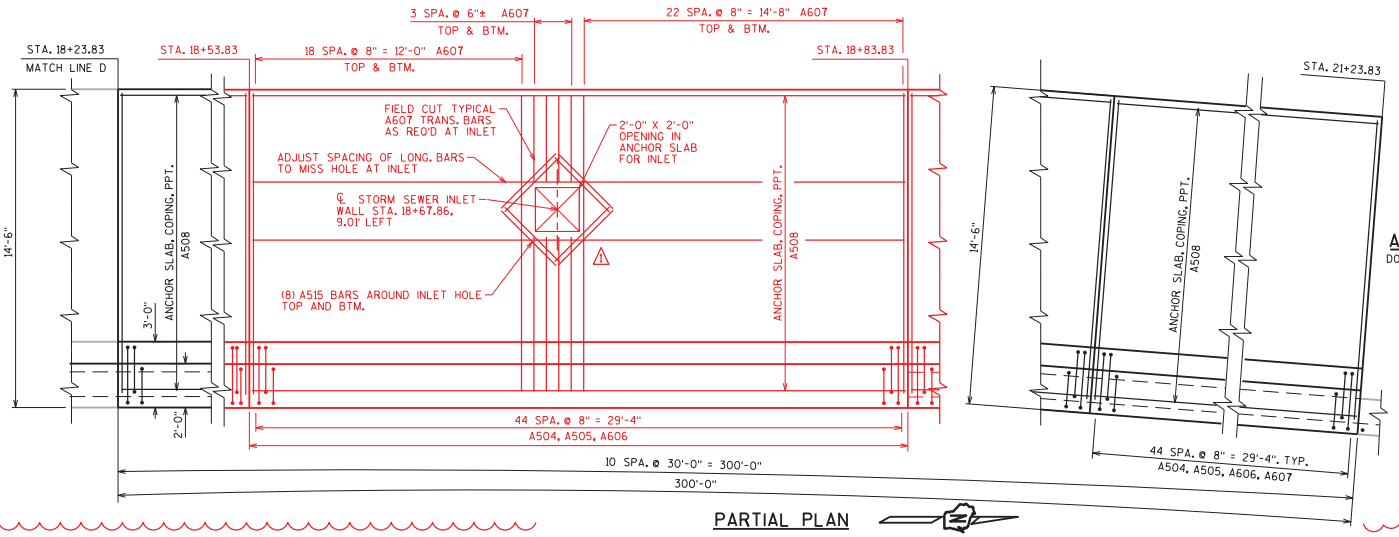
NO NOT RUN BARS THRU JOINT.
LOCATED AT ALL WALL FACING CONTRACTION AND EXPANSION JOINTS.

‡ 1" CORK FILLER WITH NON-BITUMINOUS JOINT SEALER. COLOR TO MATCH CONCRETE STAIN. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). SEAL ALL EXPOSED SURFACES OF PREFORMED JOINT FILLER OR CORK FILLER.



ANCHOR SLAB EXPANSION JOINT (PLAN VIEW)

DO NOT RUN BAR STEEL THRU JOINT, EXCEPT FOR DOWEL BARS AS SHOWN.
FOR LOCATION OF JOINTS SEE GENERAL PLAN AND ELEVATION SHEETS.
LOCATED AT ALL WALL FACING CONTRACTION AND EXPANSION JOINTS.



PARTIAL PLAN

10/7/20 AMB

NO.	DATE	REVISION	BY
1	10/6/20	STORM SEWER INLET LOCATION	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-573

DRAWN BY | PLANS CK'D. WWR | CAD

PARAPET AND ANCHOR SLAB DETAILS 3

SHEET 29

2330

SCALE = 2.75

STATE PROJECT NUMBER
1060-33-84

TIEBACK ANCHOR DATA TABLE

PILE NO.	TIEBACK NUMBER	⚠ TIEBACK ELEVATION	TIEBACK VERTICAL ORIENTATION (DEGRESS)	** TIEBACK HORIZONTAL ORIENTATION (DEGRESS)	* ESTIMATED BONDED ANCHOR LENGTH (FT)	MINIMUM UNBONDED ANCHOR LENGTH (FT)	FACTORED DESIGN LOAD (KIPS)	LOCK OFF LOAD (KIPS)	PROOF TEST LOAD (KIPS)
108	132	765.88	15	90	27	15	115	69	132
109	133	765.88	15	90	27	15	115	69	132
110	134	765.88	15	90	27	15	115	69	132
111	135	765.88	15	90	27	15	115	69	132
112	136	768.46	30	90	30	15	130	104	149
112	137	762.46	30	90	11	15	45	36	51
113	138	767.97	30	90	30	15	130	104	149
113	139	761.97	30	90	11	15	45	36	51
114	140	767.48	30	**95**	30	15	130	104	149
114	141	761.48	30	**95**	11	15	45	36	51
115	142	766.99	30	**92.5**	30	15	130	104	149
115	143	760.99	30	**92.5**	11	15	45	36	51
116	144	766.50	30	90	30	15	130	104	149
116	145	760.50	30	90	11	15	45	36	51
117	146	766.01	30	90	30	15	130	104	149
117	147	760.01	30	90	11	15	45	36	51
118	148	765.52	30	90	30	15	130	104	149
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122	156	765.05	30	90	25	15	110	88	126
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133	167	760.03	30	90	24	15	105	84	120
134	168	759.61	30	90	24	15	105	84	120
135	169	762.18	15	90	⚠2 24	15	⚠2 105	63	120
136	170	761.76	15	90	24	15	105	63	120
137	171	761.34	15	90	24	15	105	63	120
138	172	760.91	15	90	24	15	105	63	120
139	173	760.49	15	90	13	15	55	33	63
140	174	760.07	15	90	13	15	55	33	63
141	175	760.25	15	90	11	15	45	27	51
142	176	759.16	15	90	11	15	45	27	51

LEGEND

* ESTIMATED BONDED ANCHOR LENGTH BASED ON 8" DIA. ANCHOR AND AN ASSUMED UNIFORM, ULTIMATE BOND STRESS OF 2.0 KSF (PHI=1.0). MINIMUM BONDED ANCHOR LENGTH = 15'-0"

⚠ ELEVATION GIVEN AT FRONT FACE OF SOLDIER PILE

** HORIZONTAL ORIENTATION IS MEASURED FROM WALL R/L IN COUNTER-CLOCKWISE DIRECTION

Addendum No. 05
ID 1060-33-84
Revised Sheet 2352
October 8, 2020

8

8

NO.	DATE	REVISION	BY
⚠2	10/6/20	TIEBACK LOADS	CAD
⚠1	9/18/20	TIEBACK LOADS	CAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-576

DRAWN BY WWR | PLANS CK'D. CAD

TIEBACK ANCHOR DATA TABLE 2

SHEET 12

2352

AMB 10/7/20

SCALE = 4.00

PAVEMENT MARKING ITEMS

CATEGORY	LOCATION	646.9010 MARKING REMOVAL LINE WATER BLASTING 4-INCH LF	SPV.0060.0405 REMOVE GROOVED IN PAVEMENT MARKING THERMOPLASTIC ARROWS AND WORDS EACH	SPV.0090.0405 REMOVE PAVEMENT MARKING 12-INCH LF	SPV.0090.0406 REMOVE PAVEMENT MARKING 24-INCH LF	SPV.0090.0414 REMOVE PAVEMENT MARKING GROOVED CONTRAST TAPE 4-INCH LF	SPV.0090.0415 REMOVE PAVEMENT MARKING GROOVED CONTRAST TAPE 8-INCH LF
1000							
	B-40-777 PHASE 1	440	--	--	--	--	--
	B-40-778 PHASE 1	460	--	--	--	--	--
	B-40-781 PHASE 1	471	--	--	--	--	--
	B-40-782 PHASE 1	506	--	--	--	--	--
	B-40-788, B-40-790, B-40-797 PHASE 1	482	--	102	--	121	--
	B-40-788, B-40-790, B-40-797 PHASE 2	482	--	115	--	121	69
	B-40-789, B-40-791, B-40-798 PHASE 1	482	1	103	--	120	--
	B-40-789, B-40-791, B-40-798 PHASE 2	481	--	85	--	121	69
	B-40-795, B-40-859 PHASE 1	414	--	--	--	--	--
	B-40-796 PHASE 1	102	--	17	--	--	--
	B-40-796 PHASE 2	102	--	--	--	26	--
	B-40-799, B-40-860 PHASE 1	374	--	--	--	--	--
	B-40-849 PHASE 1	83	--	--	--	--	--
	B-40-849 PHASE 2	84	--	--	39	21	167
	B-40-851, B-40-861 PHASE 1	1,455	--	--	--	--	--
	B-40-857 PHASE 1	341	--	--	--	--	--
	B-40-857 PHASE 2	341	--	--	--	85	865
	B-40-863 PHASE 1	134	--	25	--	34	--
	B-40-863 PHASE 2	134	--	18	--	34	34
	B-40-864 PHASE 1	134	--	36	--	68	--
	B-40-864 PHASE 2	134	--	25	--	67	--
	B-40-869 PHASE 1	316	--	102	--	78	--
	B-40-869 PHASE 2	300	2	--	--	164	--
	B-40-870 PHASE 1	333	--	135	--	85	86
	B-40-870 PHASE 2	358	--	--	--	175	--

Addendum No. 05
ID 1100-18-73
Added Sheet 140A
October 8, 2020

(CONTINUED ON NEXT SHEET)

PAVEMENT MARKING ITEMS (CONTINUED)

CATEGORY	LOCATION	646.9010 MARKING REMOVAL LINE WATER BLASTING 4-INCH LF	SPV.0060.0405 REMOVE GROOVED IN PAVEMENT MARKING THERMOPLASTIC ARROWS AND WORDS EACH	SPV.0090.0405 REMOVE PAVEMENT MARKING 12-INCH LF	SPV.0090.0406 REMOVE PAVEMENT MARKING 24-INCH LF	SPV.0090.0414 REMOVE PAVEMENT MARKING GROOVED CONTRAST TAPE 4-INCH LF	SPV.0090.0415 REMOVE PAVEMENT MARKING GROOVED CONTRAST TAPE 8-INCH LF
1000							
	B-40-871, B-40-873 PHASE 1	411	--	170	--	103	--
	B-40-871, B-40-873 PHASE 2	411	--	68	--	206	--
	B-40-872, B-40-874 PHASE 1	411	--	170	--	103	--
	B-40-872, B-40-874 PHASE 2	411	--	85	--	206	--
	B-40-882 PHASE 1	200	--	34	--	100	--
	B-40-882 PHASE 2	200	--	--	--	50	50
	B-40-883 PHASE 1	201	--	34	--	100	--
	B-40-883 PHASE 2	201	--	--	--	100	--
	B-40-891 PHASE 1	136	--	--	--	--	--
	SUBTOTALS	11,525	3	1,324	39	2,288	1,340
	TOTALS	11,525	3	1,324	39	2,288	1,340

Addendum No. 05
ID 1100-18-73
Added Sheet 140B
October 8, 2020

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0226	502.0110.S Concrete Masonry Soldier Pile Footings	1,741.000 CY	_____.____	_____.____
0228	502.3101 Expansion Device	332.000 LF	_____.____	_____.____
0230	502.3111.S Expansion Device Modular	54.000 LF	_____.____	_____.____
0232	502.3200 Protective Surface Treatment	4,653.000 SY	_____.____	_____.____
0234	502.3210 Pigmented Surface Sealer	4,264.000 SY	_____.____	_____.____
0236	502.4205 Adhesive Anchors No. 5 Bar	1,073.000 EACH	_____.____	_____.____
0238	502.4207 Adhesive Anchors No. 7 Bar	136.000 EACH	_____.____	_____.____
0240	503.0137 Prestressed Girder Type I 36W-Inch	11,675.000 LF	_____.____	_____.____
0242	503.0155 Prestressed Girder Type I 54W-Inch	15,942.000 LF	_____.____	_____.____
0244	504.0500 Concrete Masonry Retaining Walls	5,891.000 CY	_____.____	_____.____
0246	505.0400 Bar Steel Reinforcement HS Structures	1,991,815.000 LB	_____.____	_____.____
0248	505.0600 Bar Steel Reinforcement HS Coated Structures	3,445,605.000 LB	_____.____	_____.____
0250	505.0800.S Bar Steel Reinforcement HS Stainless Structures	12,204.000 LB	_____.____	_____.____
0252	505.0904 Bar Couplers No. 4	39.000 EACH	_____.____	_____.____
0254	505.0905 Bar Couplers No. 5	120.000 EACH	_____.____	_____.____
0256	505.0906 Bar Couplers No. 6	8.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0258	505.0908 Bar Couplers No. 8	24.000 EACH	_____.____	_____.____
0260	505.0910 Bar Couplers No. 10	126.000 EACH	_____.____	_____.____
0262	505.0911 Bar Couplers No. 11	550.000 EACH	_____.____	_____.____
0264	506.0105 Structural Steel Carbon	55,499.000 LB	_____.____	_____.____
0266	506.0605 Structural Steel HS	4,966,017.000 LB	_____.____	_____.____
0268	506.2605 Bearing Pads Elastomeric Non-Laminated	392.000 EACH	_____.____	_____.____
0270	506.2610 Bearing Pads Elastomeric Laminated	112.000 EACH	_____.____	_____.____
0272	506.3004 Welded Stud Shear Connectors 3/4x4-Inch	176.000 EACH	_____.____	_____.____
0274	506.3010 Welded Stud Shear Connectors 7/8x5-Inch	13,093.000 EACH	_____.____	_____.____
0276	506.3020 Welded Stud Shear Connectors 7/8x7-Inch	6,720.000 EACH	_____.____	_____.____
0278	506.4000 Steel Diaphragms (structure) 0002. B-40-792	9.000 EACH	_____.____	_____.____
0280	506.4000 Steel Diaphragms (structure) 0003. B-40-793	21.000 EACH	_____.____	_____.____
0282	506.4000 Steel Diaphragms (structure) 0004. B-40-794	24.000 EACH	_____.____	_____.____
0284	506.4000 Steel Diaphragms (structure) 0005. B-40-875	192.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0952	646.8220 Marking Island Nose Epoxy	19.000 EACH	_____.____	_____.____
0954	646.8320 Marking Parking Stall Epoxy	152.000 LF	_____.____	_____.____
0956	646.9000 Marking Removal Line 4-Inch	120,000.000 LF	_____.____	_____.____
0958	646.9010 Marking Removal Line Water Blasting 4-Inch	99,799.000 LF	_____.____	_____.____
0960	646.9310 Marking Removal Special Marking Water Blasting	2.000 EACH	_____.____	_____.____
0962	649.0105 Temporary Marking Line Paint 4-Inch	19,000.000 LF	_____.____	_____.____
0964	649.0120 Temporary Marking Line Epoxy 4-Inch	360,000.000 LF	_____.____	_____.____
0966	649.0150 Temporary Marking Line Removable Tape 4-Inch	53,301.000 LF	_____.____	_____.____
0968	649.0205 Temporary Marking Line Paint 8-Inch	675.000 LF	_____.____	_____.____
0970	649.0220 Temporary Marking Line Epoxy 8-Inch	13,500.000 LF	_____.____	_____.____
0972	649.0250 Temporary Marking Line Removable Tape 8-Inch	5,898.000 LF	_____.____	_____.____
0974	649.0520 Temporary Marking Arrow Epoxy	10.000 EACH	_____.____	_____.____
0976	649.0760 Temporary Marking Raised Pavement Marker Type I	100.000 EACH	_____.____	_____.____
0978	652.0125 Conduit Rigid Metallic 2-Inch	1,203.000 LF	_____.____	_____.____
0980	652.0135 Conduit Rigid Metallic 3-Inch	28.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1278	SPV.0060 Special 0130. Cross Stitching Longitudinal Joints and Cracks	700.000 EACH	_____.____	_____.____
1280	SPV.0060 Special 0150. Crack and Damage Survey Single or Double Unit Residential	43.000 EACH	_____.____	_____.____
1282	SPV.0060 Special 0155. Crack and Damage Survey Multi-Unit Residential	5.000 EACH	_____.____	_____.____
1284	SPV.0060 Special 0160. Crack and Damage Survey Commercial Public or Industrial	5.000 EACH	_____.____	_____.____
1286	SPV.0060 Special 0165. Maintain and Salvage Crash Cushions Temporary Left in Place	3.000 EACH	_____.____	_____.____
1288	SPV.0060 Special 0400. Marking Contrast Epoxy Special Marking Arrow	10.000 EACH	_____.____	_____.____
1290	SPV.0060 Special 0405. Remove Grooved In Pavement Marking Thermoplastic Arrows And Words	42.000 EACH	_____.____	_____.____
1292	SPV.0060 Special 0601. Baseline CPM Progress Schedule	1.000 EACH	_____.____	_____.____
1294	SPV.0060 Special 0602. Monthly CPM Progress Schedule Updates	32.000 EACH	_____.____	_____.____
1296	SPV.0060 Special 0603. Exposing Existing Infrastructure Paved Area	15.000 EACH	_____.____	_____.____
1298	SPV.0060 Special 0604. Exposing Existing Infrastructure Unpaved Area	15.000 EACH	_____.____	_____.____
1300	SPV.0060 Special 0910. Traffic Control Close-Open Freeway Entrance Ramp	449.000 EACH	_____.____	_____.____
1302	SPV.0060 Special 0916. Traffic Control Local Road Lane Closures	435.000 EACH	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1574	SPV.0090 Special 0401. Marking Contrast Epoxy 8-Inch	8,895.000 LF	_____.____	_____.____
1576	SPV.0090 Special 0405. Remove Pavement Marking 12-Inch	1,420.000 LF	_____.____	_____.____
1578	SPV.0090 Special 0410. Remove Grooved In Pavement Marking Thermoplastic Stop Bar	438.000 LF	_____.____	_____.____
1580	SPV.0090 Special 0414. Remove Pavement Marking Grooved Tape 4-Inch	3,667.000 LF	_____.____	_____.____
1582	SPV.0090 Special 0415. Remove Pavement Marking Grooved Tape 8-Inch	3,208.000 LF	_____.____	_____.____
1584	SPV.0090 Special 0600. Salvage Temporary Precast Concrete Barrier Left in Place	1,400.000 LF	_____.____	_____.____
1586	SPV.0090 Special 0800. Remove and Dispose of UPRR Track	6,142.000 LF	_____.____	_____.____
1588	SPV.0090 Special 0805. Construct 136LB ISHH CWR on Wood Ties	6,159.000 LF	_____.____	_____.____
1590	SPV.0090 Special 0810. Construct Double Inside Guard Rail	660.000 LF	_____.____	_____.____
1592	SPV.0090 Special 0900. Fence Temporary 6-FT	8,775.000 LF	_____.____	_____.____
1594	SPV.0090 Special 0910. Glare Screens Temporary	11,450.000 LF	_____.____	_____.____
1596	SPV.0090 Special 0920. Concrete Barrier Temporary Precast Anchoring	2,400.000 LF	_____.____	_____.____
1598	SPV.0090 Special 0925. Concrete Barrier Temporary Precast Anchored on Bridge	3,200.000 LF	_____.____	_____.____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1600	SPV.0090 Special 1001. Cable Aerial Aluminum 6 AWG Triplex	1,100.000 LF	_____._____	_____._____
1602	SPV.0090 Special 1002. Cable Aerial Aluminum 4 AWG Triplex	5,470.000 LF	_____._____	_____._____
1604	SPV.0090 Special 1003. Cable Aerial Aluminum 2 AWG Triplex	1,930.000 LF	_____._____	_____._____
1606	SPV.0090 Special 4008. Piling Steel HP 14-Inch X 89LB	1,500.000 LF	_____._____	_____._____
1608	SPV.0090 Special 4009. Piling Steel HP 14-Inch x 117 LB	1,500.000 LF	_____._____	_____._____
1610	SPV.0090 Special 4028. Drilled Foundation Shaft 59.06-Inch	211.000 LF	_____._____	_____._____
1612	SPV.0090 Special 4035. Foundation Drilling	14,575.000 LF	_____._____	_____._____
1614	SPV.0090 Special 4048. Wall Secant Pile 59.06-Inch	4,520.000 LF	_____._____	_____._____
1616	SPV.0090 Special 4050. Wall Tangent Pile 36-Inch	11,900.000 LF	_____._____	_____._____
1618	SPV.0090 Special 4068. Handrail B-40-878	295.000 LF	_____._____	_____._____
1620	SPV.0090 Special 4069. Handrail R-40-622	325.000 LF	_____._____	_____._____
1622	SPV.0090 Special 4088. Handrail Temporary	836.000 LF	_____._____	_____._____
1624	SPV.0090 Special 4100. Fence Decorative Bridge	560.000 LF	_____._____	_____._____
1626	SPV.0090 Special 4105. Fence Decorative Wall	1,929.000 LF	_____._____	_____._____
1628	SPV.0090 Special 4200. Removing Existing Steel Piling	1,005.000 LF	_____._____	_____._____

Proposal ID: 20201013001 Project(s): 1060-33-84, 1060-34-77, 1100-18-73, 1100-18-76

Federal ID(s): WISC 2020466, N/A, WISC 2021001, WISC 2020467

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
1840	SPV.0090 Special 1004. Polyethylene Duct 1 1/4-Inch	950.000 LF	_____.____	_____.____
1842	450.4000 HMA Cold Weather Paving	25,312.000 TON	_____.____	_____.____
1844	SPV.0060 Special 0170. Temporary Access Gates at CPRR	4.000 EACH	_____.____	_____.____
1846	SPV.0060 Special 0171. Temporary Crossing at CPRR	2.000 EACH	_____.____	_____.____
1848	SPV.0060 Special 0960. Crash Cushions Temporary Low Maintenance	22.000 EACH	_____.____	_____.____
1850	SPV.0090 Special 0406. Remove Pavement Marking 24-Inch	39.000 LF	_____.____	_____.____
	Section: 0001		Total:	_____.____

Total Bid: _____.____