HIGHWAY WORK PROPOSAL

Proposal Number: Ø 6

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

COUNTY	STATE PROJECT ID	FEDERAL PROJECT ID	PROJECT DESCRIPTION	HIGHWAY
Milwaukee	1060-33-70	WISC 2013 001	Zoo IC - Mayfair Road IH 94 to Watertown Plank Road	STH 100

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, $ 890,000.00 Payable to: Wisconsin Department of Transportation	Attach Proposal Guaranty on back of this PAGE.
Bid Submittal Due Date: January 8, 2013 Time (Local Time): 9:00 AM	Firm Name, Address, City, State, Zip Code **SAMPLE** **NOT FOR BIDDING PURPOSES**
Contract Completion Time May 15, 2014	
Assigned Disadvantaged Business Enterprise Goal 20 %	This contract is subject to federal oversight.

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

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

Subscribed and sworn to before me this date _____

(Signature, Notary Public, State of Wisconsin)

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

(Date Commission Expires)

Notary Seal

(Bidder Signature)

(Print or Type Bidder Name)

(Bidder Title)

For Department Use Only

Type of Work Removals, excavation common, base aggregate, concrete pavement, HMA pavement, concrete barrier, concrete curb and gutter, concrete sidewalk, storm sewer, storm water ponds, erosion control, traffic control, pavement marking, sign structures, permanent signing, street lighting, traffic signals, structures, retaining walls, restoration, streetscaping, and other incidental items.	
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 2007 Letting

BID PREPARATION

Preparing the Proposal Schedule of Items

A General

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

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

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

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

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

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

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

(6) Contractors are responsible for checking on the issuance of addenda and for obtaining the addenda. Notice of issuance of addenda is posted on the department's web site at http://www.dot.wisconsin.gov/business/engrserv/bid-letting-information.htm or by calling the department at (608) 266-1631. Addenda can ONLY be obtained from the departments web site listed above or by picking up the addenda at the Bureau of Highway Construction, Room 601, 4802 Sheboygan Avenue, Madison, WI, during regular business hours.

B Submitting Electronic Bids

B.1 On the Internet

(1) Do the following before submitting the bid:

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

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

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

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

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

(1) Download the latest schedule of items from the Wisconsin pages of the Bid Express™ web site reflecting the latest addenda posted on the department's web site at **http://www.dot.wisconsin.gov/business/engrserv/bid-letting-information.htm**. 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)

FEBRUARY 1999

LIST OF SUBCONTRACTORS

Section 66.29(7), Wisconsin Statutes, provides that a bidder, as a part of his proposal, shall submit a list of the subcontractors he proposes to contract with and the class of work to be performed by each, provided that to qualify for such listing each subcontractor must first submit his bid in writing to the general contractor at least 48 hours prior to the time of bid closing. It further provides that a proposal of a bidder shall not be invalid if any subcontractor, and the class of work to be performed by such subcontractor, has been omitted from a proposal.

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.

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SPECIAL PROVISIONS

1. General.

Perform the work under this construction contract for Project 1060-33-70, Zoo IC – Mayfair Road, IH 94 to Watertown Plank Road, STH 100, 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, 2013 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 (20120615)

2. Scope of Work.

The work under this contract consists of removals, grading, dense graded base, concrete pavement, concrete curb and gutter, concrete sidewalk, concrete barrier, asphaltic surface, HMA pavement, storm sewer, storm water ponds, stream relocation, erosion control, permanent signing, traffic signals, traffic control, pavement marking, street lighting, structures, retaining walls, overhead sign structures, restoration, streetscaping, and all incidental items necessary to complete the work as shown on the plans and included in the proposal and contract.

Structures:

Bridges
B-40-433

Retaining Walls
R-40-475
R-40-476
R-40-477

Sign Structures

S-40-445	S-40-944	S-40-948
S-40-446	S-40-945	S-40-949
S-40-634	S-40-946	S-40-951
S-40-943	S-40-947	S-40-952

104-005 (20090901)

3. Mandatory Pre-Bid Meeting.

Supplement standard spec 102.3.1 with the following:

Prospective bidders are required to attend a mandatory pre-bid meeting on Tuesday, December 18, 2012 at 9:00 AM in Room 314 of the WisDOT Southeast Region office located at 141 NW Barstow Street, Waukesha, Wisconsin 53187.

The meeting agenda will include the following:

- Program Overview
- Project 1060-33-70 Proposal
- Safety
- Equity and Environmental Provisions
- Owner Controlled Insurance Program (OCIP)

The Zoo Interchange project will be constructed under the umbrella of an owner Controlled Insurance Program (OCIP). For contractors/consultants that provide regular and on-going work within the footprint of the Corridor Project, participation in the OCIP is mandatory and requires enrollment into the OCIP. The OCIP requires submitted bids to exclude the cost of the OCIP provided coverage.

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

If you have any questions regarding the OCIP, including questions on if your company needs to be enrolled into the OCIP, please contact Chris Luttrell at (608) 267-7722.

The meeting will discuss project specific issues for ID 1060-33-70 including construction staging and traffic control; construction of the railroad tunnel and retaining walls; drainage; and utility coordination.

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

4. Prosecution and Progress.

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

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

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

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

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

Winter weather work, excavation of frozen ground, high ground water, dewatering during winter months, and mitigation efforts for high water table elevations shall not be considered adverse weather delays to construction. Cost for dewatering is considered incidental to construction.

Anticipate cold weather and early spring concrete paving and ancillary concrete work (curb, median barrier, etc). Plan to heat aggregates and water for mixes, and that the heating of the aggregate and water is considered incidental to those concrete items. There will be no adverse weather delay for cold weather construction.

Maintain pedestrian access at all locations outside the immediate construction area. Maintain sidewalk on at least one side of each roadway within the construction area.

During construction operations, ramp sawed joints at intersecting streets with asphaltic surface material between the existing pavement surface and the adjacent surface, as directed by the engineer, to permit the safe passing of vehicles. The cost of the materials, labor, and equipment necessary to install such ramps is to be paid under bid item, Asphaltic Surface Temporary.

Lay out all doweled transverse joints on this project, including intersections. The engineer will approve joint layout. Joint spacing must not exceed 15 feet, as shown on the standard detail drawing. Place joints at end-of-radii, center line and flange line extended, all zero face driveway openings for depressed driveways and, when feasible, at all manholes, catch basins or inlets, and water valve boxes. Include the cost of all jointing and dowel baskets in the unit bid price for concrete pavement.

Interim Liquidated Damages
Supplement subsection 108.11 of the standard specifications as follows:

W. Potter Road/W. Research Drive
Between 12:01 AM June 15, 2013 and 12:01 AM July 16, 2013, W. Potter Road can be closed to vehicular traffic. Maintain access to businesses in northwest corner of STH 100 and W. Potter Road. Complete all work on W. Potter Road and W. Research Drive for

opening all travel lanes in this contract for vehicular traffic including sidewalks and temporary signals prior to 12:01 AM July 16, 2013.

If the contractor fails to complete the above work on W. Potter Road and W. Research Drive by the specified completion date, the department will assess the contractor $5,000 in interim liquidated damages for each calendar day that the temporary signals, roadway, and sidewalks remain closed after 12:01 AM July 16, 2013. An entire calendar day will be charged for any period of time within a calendar day that the road remains closed beyond 12:01 AM.

STH 100 and W. Bluemound Road Intersection
Between 12:01 AM July 20, 2013 and 12:01 AM August 1, 2013, the intersection of STH 100 and W. Bluemound Road can be closed to vehicular traffic. Complete all work and coordination measures necessary to open the STH 100 intersection at W. Bluemound Road including the segment of W. Bluemound Road between N. 111th Street and N. 104th Street, including repairing and waterproofing B-40-433, storm sewer, placement of concrete pavement and curb and gutter, temporary or permanent street lighting, pavement markings, signing, temporary signals, and all incidentals necessary for opening the intersection for vehicular traffic under this contract prior to 12:01 AM August 1, 2013. Open STH 100 and W. Bluemound Road to traffic as shown in Stage 3B of the plan.

If the contractor fails to complete the above work at the STH 100 and W. Bluemound Road intersection and on the segment of W. Bluemound Road between N. 111th Street and N. 104th Street by the specified completion date, the department will assess the contractor $50,000 in interim liquidated damages for each calendar day that the roadway remains closed after 12:01 AM August 1, 2013. An entire calendar day will be charged for any period of time within a calendar day that the road remains closed beyond 12:01 AM.

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

STH 100 and W. Watertown Plank Road Intersection
Between 12:01 AM August 1, 2013 and 5:00 AM August 5, 2013, the intersection of STH 100 and W. Watertown Plank Road can be closed to all vehicular traffic. The intersection of STH 100 and W. Watertown Plank Road cannot be closed to traffic at the same time the STH 100 and W. Bluemound Road intersection is closed to traffic. Complete all work and coordination measures necessary to open northbound and southbound traffic at the intersection of STH 100 and W. Watertown Plank Road to two lanes in each direction on new concrete pavement in the northbound roadway, including storm sewer, placement of concrete pavement and curb and gutter, asphaltic surface, temporary or permanent street lighting, pavement markings, signing, and all incidentals necessary for opening the intersection to northbound and southbound vehicular traffic under this contract prior to 5:00 AM August 5, 2013.

If the contractor fails to complete the above work at the STH 100 and W. Watertown Plank Road intersection by the specified completion date, the department will assess the contractor $30,000 in interim liquidated damages for each calendar day that the roadway remains closed to two lanes of northbound and southbound traffic in each direction after 5:00 AM, August 5, 2013. An entire calendar day will be charged for any period of time within a calendar day that the road remains closed beyond 5:00 AM, August 5, 2013.

Between 12:01 AM August 1, 2013 and 12:01 AM August 11, 2013, the segment of W. Watertown Plank Road between Station 15WEB+81.40 and Station 32WEB+75.00 can be closed to eastbound and westbound vehicular traffic. See Article Incentive/Disincentive for Interim Completion of Work for additional information.

Opening to Traffic

Complete all work in this contract other than perennial and decorative grass landscape plantings shown in the streetscaping plans by December 13, 2013, and open STH 100 and all side roads to through traffic on all lanes in both directions. Complete construction operations on STH 100 and all side roads to open all travel lanes in this contract prior to 12:01 AM December 14, 2013. Do not reopen all travel lanes until completing the following work: all ponds, stream relocation, all storm sewer and drainage structures, all conduit, sanitary sewer, all water main and hydrant work, all embankment, all concrete and asphalt paving, all concrete curb and gutter, all concrete barrier, concrete sidewalk, parking lot restoration, path restoration, all structures, all retaining walls, permanent street lighting, permanent traffic signals, FTMS, communications, pavement marking, permanent signing, permanent fencing, and all roadway finishing except perennial and decorative grass landscaping plantings.

If the contractor fails to complete the work necessary to reopen STH 100 to through traffic prior to 12:01 AM December 14, 2013, the department will assess the contractor $20,000 in interim liquidated damages for each calendar day that the roadway remains closed after 12:01 AM December 14, 2013. An entire calendar day will be charged for any period of time within a calendar day that the road remains closed beyond 12:01 AM.

The department will not grant time extensions to the interim completion dates specified above for the following:

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

Fall Suspension

Work will be suspended prior to 12:01 AM December 14, 2013, after completion of all construction except perennial and decorative grass landscape plantings shown in the streetscaping plans; and weather conditions or seasonal restrictions preclude the satisfactory performance of further landscaping work under this contract, the engineer will, in writing, suspend operations until the spring of 2014 the work resumes. Resume construction operations in the spring of 2014 and resume the work within ten days after the date on which a written order to do so has been issued by the engineer.

Final Completion
Complete all perennial and decorative grass landscape planting work in this contract prior to 12:01 AM May 16, 2014.

A 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:

Stage 1A:	03/01/2013 to 03/15/2013
Stage 1B:	03/16/2013 to 04/04/2013
Stage 2:	04/05/2013 to 07/19/2013
Stage 3A:	7/20/2013 to 07/31/2013
Stage 3B:	08/01/2013 to 08/10/2013
Stage 3C:	07/20/2013 to 10/15/2013
Stage 4:	10/16/2013 to 12/13/2013
Stage 5:	04/15/2014 to 05/15/2014

Stage 1A Traffic:

STH 100 traffic is on existing pavement.
Close STH 100 NB right-turn lane and outside lane prior to W. Bluemound Road.
W. Bluemound Road traffic is on existing pavement.
Close W. Bluemound Road EB right-turn lane and outside lane prior to STH 100.
W. Watertown Plank Road traffic is on existing pavement.

Stage 1A Construction:

Remove STH 100 NB right-turn island and build temporary pavement at W. Bluemound Road.
Remove W. Bluemound Road EB right-turn island and build temporary pavement at STH 100.
Build temporary signals at IH 94 EB entrance ramp, W. Bluemound Road, W. Wisconsin Avenue, W. Potter Road/W. Research Drive, W. Watertown Plank Road, W. Innovation Drive, and the USH 45 SB entrance ramp from W. North Avenue.
Remove Former Hotel Building Structure located at 115 N. Mayfair Road.
Construct Hotel Pond.
Construct Mayfair Pond Temporary Berm.
Construct Mayfair Pond.
Construct 60-Inch Headwall and Grate.
Begin Stream Relocation. Place settling basin at beginning of Stream Relocation.

Construct storm sewer structure S491.
Begin storm sewer mainline construction outside existing pavement.
Begin temporary street lighting installation.

Stage 1B Traffic:

STH 100 traffic is on existing pavement.
Close STH 100 NB and SB median lanes to traffic.
W. Bluemound Road traffic is on existing pavement.
Close W. Bluemound Road EB and WB median lanes to traffic.
W. Watertown Plank Road traffic is on existing pavement.
Close W. Watertown Plank Road EB and WB median lanes to traffic.
Wisconsin Access Road closed to through traffic. Maintain direct access to the businesses at 631 N. Mayfair Road and gas station at 717 N. Mayfair Road.
Nighttime lane closures for storm sewer lateral construction on STH 100, W. Bluemound Road, and W. Watertown Plank Road.

Stage 1B Construction:

Remove STH 100 median curb and gutter.
Excavate STH 100 median to ultimate section.
Build temporary pavement adjacent to STH 100 SB median lane to accommodate NB traffic in Stage 2.
Build temporary left-turn bypass lanes at intersections.
Remove W. Bluemound Road median curb and gutter.
Excavate W. Bluemound Road median to ultimate section.
Build temporary pavement in W. Bluemound Road medians.
Remove W. Watertown Plank Road median curb and gutter.
Excavate W. Watertown Plank Road median to ultimate section.
Build temporary pavement in W. Watertown Plank Road medians.
Construct Wisconsin Access Road.
Construct City of Wauwatosa water main.
Finish Hotel Pond.
Finish Mayfair Pond.
Finish 60-Inch Headwall and Grate.
Construct Stream Relocation.
Finish storm sewer structure S491.
Construct storm sewer mainline outside existing pavement.
Construct storm sewer laterals on STH 100, W. Bluemound Road, and W. Watertown Plank Road.
Finish temporary street lighting installation.
At the end of this stage, relocate temporary traffic signal pole at the north side of the W. Bluemound Road intersection from the north median to the east side of the barrier wall.

Stage 2 Traffic:

STH 100 traffic on existing SB roadway and temporary pavement in median. Keep one of the Taco Bell driveways at 510 N. Mayfair Road open at all times.

Close IH 94 WB exit ramp to NB STH 100.

Move all traffic on W. Bluemound Road to existing inside lanes and temporary pavement in median. Maintain access at all times to the W. Bluemound Road driveway located at Station 151BE+59 LT for the Arvada Place Condominium's parking garage.

Move all traffic on W. Watertown Plank Road to existing inside lanes and temporary pavement in median.

Move traffic on W. Wisconsin Avenue, W. Research Drive, and W. Innovation Drive to stage construction using three sub-stages and maintain traffic on existing lanes. Construct W. Innovation Drive prior to constructing W. Research Drive. Traffic lanes on W. Research Drive and W. Innovation Drive cannot be reduced or restricted at the same time.

Close W. Potter Road between 12:01 AM June 15, 2013 and 12:01 AM July 16, 2013. Allow access to businesses located in the northwest corner of STH 100 and W. Potter Road.

Close W. Michigan Street.

Move traffic on N. 110th Street to allow access to businesses and public parking.

Close N. 109th Street and N. 108th Place but not at the same time so access can be maintained for local streets and businesses.

Close W. Hibbard Avenue and N. 106th Street but not at the same time so access can be maintained for local streets and businesses.

Wisconsin Access Road open to through traffic.

Nighttime lane closures for storm sewer construction on STH 100, W. Bluemound Road, and W. Watertown Plank Road.

W. Watertown Plank Road closed to through traffic between STH 100 and W. Innovation Drive during a weekend in April to construct 96-inch storm sewer and reconstruct MMSD manhole. The north, south, and west legs of the STH 100 intersection at W. Watertown Plank Road are open to through traffic. Maintain access to the Wauwatosa Fire Department and Crowne Plaza Hotel.

Weekend Closure to construct W. Innovation Drive intersection at W. Watertown Plank Road. Maintain access to the Wauwatosa Fire Department and Crowne Plaza Hotel.

Stage 2 Construction:

Remove existing STH 100 NB roadway.

Construct new STH 100 NB roadway except median curb and gutter.

Build STH 100 SB temporary left-turn bypass lanes adjacent to NB median lanes at intersections.

Construct new outside lanes on W. Bluemound Road EB and WB roadways. Construct and pave the W. Bluemound Road driveway located at Station 151BE+59 LT one-half at a time to maintain access for the Arvada Place Condominium's parking garage.

Construct new outside lanes on W. Watertown Plank Road EB and WB roadways.

Construct W. Wisconsin Avenue using three sub-stages.

Construct W. Innovation Drive using three sub-stages prior to constructing W. Research Drive. W. Innovation Drive cannot be constructed at the same time as W. Research Drive.

Construct W. Research Drive using three sub-stages at the same time W. Potter Road is being reconstructed.

Construct W. Potter Road between 12:01 AM June 15, 2013 and 12:01 AM July 16, 2013. Allow access to businesses located in the northwest corner of STH 100 and W. Potter Road.

Construct W. Michigan Street.

Construct N. 110th Street to allow access to businesses and public parking.

Construct N. 109th Street and N. 108th Place but not at the same time so access can be maintained for local streets and businesses.

Construct W. Hibbard Avenue and N. 106th Street but not at the same time so access can be maintained for local streets and businesses.

Construct south Railroad Tunnel Extension at B-40-433.

Repair and waterproof B-40-433 in the STH 100 NB roadway.

Construct R-40-475.

Construct R-40-477.

Construct Minor Retaining Wall 2.

Construct Minor Retaining Wall 3.

Construct Minor Retaining Wall 4.

Construct Minor Retaining Wall 5.

Construct Dry Pond.

Finish Stream Relocation. Place Rirap Medium Special at the end of Stage 2.

Construct storm sewer on STH 100, W. Bluemound Road, and W. Watertown Plank Road.

Construct City of Wauwatosa water main and sanitary sewer.

Reconstruct MMSD manholes.

Construct traffic signals and interconnect.

Construct permanent street lighting.

Begin permanent signing.

Begin final landscaping.

Build 96-inch storm sewer pipes between structure number S466 and S467 and reconstruct MMSD manhole in W. Watertown Plank Road at Station 24WEB+91 RT in April during a weekend closure of W. Watertown Plank Road between STH 100 and W. Innovation Drive.

Construct W. Innovation Drive intersection at W. Watertown Plank Road during weekend intersection closure.

Stage 3A Traffic:

STH 100 SB traffic on existing SB roadway south of W. Bluemound Road.

STH 100 NB traffic on new NB roadway south of W. Bluemound Road.

STH 100 traffic on new NB roadway and temporary pavement in median north of W. Bluemound Road. Keep one of the Taco Bell driveways at 510 N. Mayfair Road open at all times.

IH 94 WB exit ramp to NB STH 100 is closed.

STH 100 closed to through traffic at W. Bluemound Road between 12:01 AM July 20, 2013 and 12:01 AM August 1, 2013.

W. Bluemound Road closed to through traffic at STH 100 between 12:01 AM July 20, 2013 and 12:01 AM August 1, 2013. Maintain access at all times to the W. Bluemound Road driveway located at Station 151BE+59 LT for the Arvada Place Condominium's parking garage.

Maintain N. 110th Street access to businesses and public parking south of W. Bluemound Road.

W. Watertown Plank Road traffic on existing inside lanes and temporary pavement in median.

Traffic using new pavement on W. Wisconsin Avenue, W. Potter Road, W. Research Drive, W. Innovation Drive, W. Michigan Street, and N. 110th Street.

Wisconsin Access Road open to through traffic.

N. 109th Street, N. 108th Place, W. Hibbard Avenue, and N. 106th Street closed to through traffic.

Stage 3A Construction:

Construct intersection at STH 100 and W. Bluemound Road. Extraordinary forces and equipment required. Night work anticipated.

Finish median paving at STH 100 north of IH 94.

Remove existing STH 100 SB roadway north of W. Bluemound Road.

Construct new STH 100 SB roadway north of W. Bluemound Road.

Construct inside through lanes and left-turn lanes in W. Bluemound Road EB and WB roadways.

Construct medians in W. Bluemound Road.

Finish south Railroad Tunnel Extension at B-40-433.

Repair and waterproof B-40-433 at the STH 100 and W. Bluemound Road intersection.

Finish R-40-475.

Finish R-40-477.

Begin north Railroad Tunnel Extension at B-40-433.

Repair and waterproof B-40-433 in the STH 100 SB roadway.

Relocate temporary traffic signal pole at the north side of the W. Bluemound Road intersection from the east side of the barrier wall to the median.

Stage 3B Traffic:

Move STH 100 SB traffic to new NB roadway south of W. Bluemound Road.

STH 100 traffic on new NB roadway and temporary pavement in median.

IH 94 WB exit ramp to NB STH 100 is open.
W. Bluemound Road traffic on new pavement.
STH 100 closed to through traffic at W. Watertown Plank Road between 12:01 AM August 1, 2013 and 5:00 AM August 5, 2013.
W. Watertown Plank Road closed to through traffic at STH 100 between 12:01 AM August 1, 2013 and 12:01 AM August 11, 2013.
W. Wisconsin Avenue, W. Potter Road, W. Research Drive, W. Innovation Drive, W. Michigan Street, N. 110th Street, N. 109th Street, N. 108th Place, W. Hibbard Avenue, N. 106th Street, and Wisconsin Access Road open to through traffic.
W. Mt. Vernon Avenue and Hospital Access Road closed to through traffic. Maintain direct access to the Wheaton-Franciscan Hospital urgent care center and parking structure.

Stage 3B Construction:

Construct intersection at STH 100 and W. Watertown Plank Road. Extraordinary forces and equipment required. Night work anticipated.
Build storm sewer structures and pipes between structure number S487 and S489.
Continue removing existing STH 100 SB roadway.
Construct new STH 100 SB roadway.
Construct inside through lanes and left-turn lanes in W. Watertown Plank Road EB and WB roadways.
Construct medians in W. Watertown Plank Road.
Construct W. Mt. Vernon Avenue.
Construct Starbucks Access Road.
Construct Hospital Access Road.
Construct R-40-476.
Construct north Railroad Tunnel Extension at B-40-433.
Repair and waterproof B-40-433 in the STH 100 SB roadway.

Stage 3C Traffic:

STH 100 traffic on new NB roadway and temporary pavement in median.
IH 94 WB exit ramp to NB STH 100 is open.
W. Bluemound Road, W. Wisconsin Avenue, W. Potter Road, W. Research Drive, W. Watertown Plank Road, W. Innovation Drive, W. Michigan Street, N. 110th Street, N. 109th Street, N. 108th Place, W. Hibbard Avenue, N. 106th Street, and Wisconsin Access Road open to through traffic.
W. Mt. Vernon Avenue and Hospital Access Road closed to through traffic. Maintain direct access to the Wheaton-Franciscan Hospital urgent care center and parking structure.
Nighttime lane closures for storm sewer construction on STH 100.

Stage 3C Construction:

Finish new STH 100 SB roadway.
Construct W. Mt. Vernon Avenue.

Construct Starbucks Access Road.
Construct Hospital Access Road.
Finish R-40-476.
Finish north Railroad Tunnel Extension at B-40-433.
Repair and waterproof B-40-433 in the STH 100 SB roadway.
Construct Minor Retaining Wall 1.
Finish STH 100 storm sewer construction.
Finish City of Wauwatosa water main.
Reconstruct MMSD manhole.
Construct traffic signals and interconnect.
Construct permanent street lighting.
Continue permanent signing.
Continue final landscaping.

Stage 4 Traffic:

Move STH 100 NB traffic on outside lanes of new NB roadway.
Move STH 100 SB traffic on outside lanes of new SB roadway.
Keep STH 100 NB and SB median lanes closed to traffic.
Stage intersection construction to allow access to side roads.
IH 94 WB exit ramp to NB STH 100 is open.
W. Bluemound Road, W. Wisconsin Avenue, W. Potter Road, W. Research Drive, W. Watertown Plank Road, W. Innovation Drive, W. Mt. Vernon Avenue, W. Michigan Street, N. 110th Street, N. 109th Street, N. 108th Place, W. Hibbard Avenue, N. 106th Street, Hospital Access Road, and Wisconsin Access Road open to through traffic.
Nighttime lane closures for permanent street light and traffic signal installations.

Stage 4 Construction:

Construct STH 100 NB median curb and gutter.
Construct STH 100 NB and SB left-turn lanes.
Construct medians in STH 100.
Finish traffic signals and interconnect.
Construct permanent street lighting.
Remove temporary street lighting.
Activate permanent traffic signals.
Remove temporary traffic signals at W. Bluemound Road, W. Wisconsin Avenue, W. Potter Road/W. Research Drive, and W. Watertown Plank Road.
Remove temporary traffic signals at the USH 45 SB entrance ramp from W. North Avenue by January 15, 2014 but not before January 1, 2014.
Finish permanent signing.
Continue final landscaping.

Stage 5 Traffic:

Single lane closures during Off-Peak Hours on STH 100, W. Bluemound Road, and W. Watertown Plank Road.

Stage 5 Construction:

Finish perennial and decorative grass landscape planting.

Contractor Coordination

Attend weekly scheduling meetings to discuss the near term schedule activities, address any long-term schedule issues, and discuss any relevant technical issues. Develop a rolling three-week schedule identifying the previous week worked and a two week "look ahead". Provide sufficient detail to include actual and planned activities and all the subcontractors for offsite and construction activities, addressing all activities including ramp and lane closure schedules to be performed and identifying issues requiring engineering action or input. Submit plans for all traffic control for review by the engineer and approval a minimum of one week prior to implementation.

Advance Notification

Notify the engineer and WisDOT SE Region Work Zone Engineer (262-548-6730) if there are any changes in the schedule, early completions, or cancellations of scheduled work. Coordinate the locations of messages of portable changeable message sign with the engineer and WisDOT STOC. Notify WisDOT Signal Operations (414-750-2605) and WisDOT Electrical Field Unit (414-266-1170) regarding changes for alternate routes and detours.

Provide the project engineer with a schedule of lane and ramp closures for the following week by noon on Thursday of the previous week. In addition, provide the following minimum advance notification to the project engineer for incorporation into the Wisconsin Lane Closure System.

Ramp Closures	3 business days
System Ramp Closures	7 calendar days
Lane Closures	3 business days
Full Freeway Closures	14 calendar days
Construction Stage Changes	14 calendar days
Detours	14 calendar days

Freeway Work Restrictions

No freeway lane or ramp closures allowed with the exception of the IH 94 westbound to STH 100 northbound long-term ramp closure specified in the staging plans and in the articles for Prosecution and Progress and Traffic.

Definitions

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

Peak Hours

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

Off-Peak Hours

9:00 PM – 6:00 AM	Monday PM to Tuesday AM
9:00 PM – 6:00 AM	Tuesday PM to Wednesday AM
9:00 PM – 6:00 AM	Wednesday PM to Thursday AM
9:00 PM – 6:00 AM	Thursday PM to Friday AM
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

Local Street Work Restrictions

Make at least two travel lanes available in each direction to STH 100, W. Bluemound Road, and W. Watertown Plank Road traffic during the Peak Hours unless approved by the engineer. Traffic may be reduced to one lane in each direction during Off-Peak Hours only. Full lane closures may be allowed with written approval from the engineer seven (7) calendar days prior to the full closure.

Open STH 100, W. Bluemound Road, and W. Watertown Plank Road to two lanes of traffic in each direction as shown in the plans and remove all traffic control devices associated with the lane closure during times that single lane closures are not allowed including periods shown in the Prosecution and Progress.

Supplement standard spec 108.11 as follows:

If the contractor fails to open two lanes of traffic in each direction as shown in the plans on STH 100, W. Bluemound Road, and W. Watertown Plank Road in the periods specified in the Prosecution and Progress, the department will assess an initial deduction of $2,500 in interim liquidated damages and an additional $2,500 per 15-minute interval or portion thereof in interim liquidated damages from money due under this contract for each 15-minute interval that lane closure(s) remain. The department will administer interim liquidated damages for the road not being open to traffic under the Failing to Open Road to Traffic administrative item.

At all times maintain direct access to the Wheaton-Franciscan Hospital urgent care center and parking structure located west of STH 100 between IH 94 and W. Mt. Vernon Avenue.

At all times maintain access to the Wauwatosa Fire Department's fire station located in the southwest corner of the W. Watertown Plank Road and W. Innovation Drive intersection.

Maintain direct access to the businesses at 631 N. Mayfair Road and gas station at 717 N. Mayfair Road.

Keep one of the Taco Bell driveways at 510 N. Mayfair Road open at all times.

Maintain access at all times to the W. Bluemound Road driveway located at Station 151BE+59 LT for the Arvada Place Condominium's parking garage.

W. Watertown Plank Road can be closed to through traffic between STH 100 and W. Innovation Drive for a weekend in April between 9:00 PM Friday night and 5:00 AM Monday morning. The closure is to construct 96-inch storm sewer and reconstruct a MMSD manhole. The north, south, and west legs of the STH 100 intersection at W. Watertown Plank Road are open to through traffic. Maintain access to the Wauwatosa Fire Department and Crowne Plaza Hotel.

The intersection of W. Watertown Plank Road and W. Innovation Drive can be closed to traffic for a weekend between 9:00 PM Friday night and 5:00 AM Monday morning during Stage 2 construction. The closure is to complete intersection construction. Night work is anticipated. Maintain access to the Wauwatosa Fire Department and Crowne Plaza Hotel.

Construct W. Innovation Drive prior to constructing W. Research Drive.

Do not close W. Potter Road before June 14, 2013 while school is in session at Underwood Elementary School. W. Potter Road can be closed to through traffic during Stage 2 only between 12:01 AM June 15, 2013 and 12:01 AM July 16, 2013. Allow access to businesses located in the northwest corner of STH 100 and W. Potter Road. Coordinate with Underwood Elementary School. The contact for Underwood Elementary school is Laura Wainscott, Wauwatosa School District, (414) 773-1062. Construct W. Research Drive between 12:01 AM June 15, 2013 and 12:01 AM July 16, 2013 while W. Potter Road is under construction. Do not construct W. Innovation Drive while W. Research Drive is under construction.

N. 109th Street and N. 108th Place cannot be closed to through traffic at the same time so access can be maintained for local streets and businesses.

W. Hibbard Avenue and N. 106th Street cannot be closed to through traffic at the same time so access can be maintained for local streets and businesses.

Maintain N. 110th Street access to businesses and public parking south of W. Bluemound Road.

The intersection of STH 100 and W. Bluemound Road can be closed to traffic between 12:01 AM July 20, 2013 and 12:01 AM August 1, 2013 during Stage 3A construction. The closure is to complete repairing and waterproofing B-40-433, finish intersection

construction, and complete the construction of inside through lanes, turn lanes, and medians on W. Bluemound Road. No through traffic movements will be permitted at the intersection during this time. Extraordinary forces and equipment required. Night work is anticipated.

The intersection of STH 100 and W. Watertown Plank Road can be closed to traffic between 12:01 AM August 1, 2013 and 5:00 AM August 5, 2013 during Stage 3B construction. The closure is to finish intersection construction. No traffic movements will be permitted at the intersection during this time. Extraordinary forces and equipment required. Night work is anticipated. The intersection of STH 100 and W. Watertown Plank Road cannot be closed to traffic at the same time the STH 100 and W. Bluemound Road intersection is closed to traffic.

The segment of W. Watertown Plank Road between Station 15WEB+81.40 and Station 32WEB+75.00 can be closed to eastbound and westbound traffic between 12:01 AM August 1, 2013 and 12:01 AM August 11, 2013 during Stage 3B construction. The closure is to complete the construction of inside through lanes, turn lanes, and medians on W. Watertown Plank Road. Extraordinary forces and equipment required. Night work is anticipated. The segment of W. Watertown Plank Road between Station 15WEB+81.40 and Station 32WEB+75.00 can be closed to eastbound and westbound traffic at the same time the STH 100 and W. Watertown Plank Road intersection is closed to traffic.

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 days prior to performing such work.

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.

All Work Restrictions
Comply with the noise level restrictions as defined in the article Public Convenience and Safety.

When engaged in roadway cleaning operations, use equipment having vacuum or water spray mechanisms to eliminate the dispersion of particulate matter into the atmosphere. If vacuum equipment is employed, it must have suitable self-contained particulate collectors to prevent discharge from the collection bin into the atmosphere.

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, City of Wauwatosa Police Department, City of Milwaukee Police Department, Milwaukee County Highway Maintenance, Milwaukee County Sheriff's Department, and the engineer with a 24-hour emergency contact number for when maintenance is required.

Traffic Control Deficiency Response Time Penalty
Supplement subsection 643.3.2(8), of the standard specification with the following

Upon receiving written notification from the engineer, clean, repair or replace traffic control devices not performing as intended to the satisfaction of the engineer within 12 hours. Failure to clean, repair or replace required traffic control within the time limits specified above will result in daily monetary deductions of $500 for each 24-hour period (or portion thereof starting 12 hours after time of notification) in which the traffic control deficiency exists.

5. Traffic.

Perform the work under this contract in a manner that will interfere as little as possible with active traffic on local streets. Do not park or store vehicles, equipment, or materials on City of Wauwatosa streets adjacent to active traffic except at the time of performance of the work. Materials or equipment may be stored within the right-of-way only at locations meeting the approval of the engineer.

At all times maintain access to businesses and residents on the existing local streets within the project work area. Do not close or remove driveway approaches or parking stalls from service without a five day notice given to the occupants of the premises to remove their vehicles prior to driveway removal or closing of the driveway approach access.

Coordinate traffic requirements under this contract with other ongoing Department construction projects. This contractor shall be responsible for implementing and coordinating with other contractors all traffic control as shown on the plans.

At all times maintain direct access to the Wheaton-Franciscan Hospital urgent care center and parking structure located west of STH 100 between IH 94 and W. Mt. Vernon Avenue.

Meet with the Wauwatosa Fire Department to stage construction to allow access to the fire station located in the southwest corner of the W. Watertown Plank Road and W. Innovation Drive intersection. Access must be maintained to the fire station at all times. The Wauwatosa Fire Department contacts are Scott Erke, Assistant Chief, (414) 234-7561 and James Case, Deputy Fire Chief, (414) 471-8490. Provide the Wauwatosa Fire Department with a 24-hour emergency contact number.

Stage 1A
All roadways and freeway ramps are open to through traffic during Stage 1A construction. Maintain two through lanes in each direction on STH 100, W. Bluemound Road, and W. Watertown Plank Road.

Stage 1B
Except the Wisconsin Access Road, all roadways and freeway ramps are open to through traffic during Stage 1B construction. Maintain two through lanes in each direction on STH 100, W. Bluemound Road, and W. Watertown Plank Road. Maintain direct access to the businesses at 631 N. Mayfair Road and gas station at 717 N. Mayfair Road.

Stage 2
STH 100, W. Bluemound Road, W. Wisconsin Avenue, W. Research Drive, W. Watertown Plank Road, W. Innovation Drive, W. Mt. Vernon Avenue, and the Wisconsin Access Road are open to through traffic during Stage 2 construction. Maintain two through lanes in each direction on STH 100, W. Bluemound Road, and W. Watertown Plank Road as shown in the plan. Maintain one travel lane in each direction on W. Wisconsin Avenue and W. Innovation Drive as shown in the plan.

Maintain access at all times to the W. Bluemound Road driveway located at Station 151BE+59 LT for the Arvada Place Condominium's parking garage.

Keep one of the Taco Bell driveways at 510 N. Mayfair Road open at all times.

Stage construction at N. 110th Street to allow access to businesses and public parking south of W. Bluemound Road.

N. 109th Street and N. 108th Place can be closed to through traffic during Stage 2 construction. N. 109th Street and N. 108th Place cannot be closed to through traffic at the same time so access can be maintained for local streets and businesses.

W. Hibbard Avenue and N. 106th Street can be closed to through traffic during Stage 2 construction. W. Hibbard Avenue and N. 106th Street cannot be closed to through traffic at the same time so access can be maintained for local streets and businesses.

Construct W. Innovation Drive prior to constructing W. Research Drive.

W. Potter Road can be closed to through traffic during Stage 2 only between 12:01 AM June 15, 2013 and 12:01 AM July 16, 2013. Maintain access to businesses located in the northwest corner of STH 100 and W. Potter Road. Construct W. Research Drive between 12:01 AM June 15, 2013 and 12:01 AM July 16, 2013 while W. Potter Road is under construction. During this time, stage construction to provide one travel lane in each direction on W. Research Drive. Traffic lanes on W. Research Drive and W. Innovation Drive cannot be reduced or restricted at the same time.

On W. Watertown Plank Road, stage construction to allow access to the businesses located in the northwest and southwest quadrants of the intersection at STH 100. Construction must be staged to allow access to Underwood Parkway from W. Watertown Plank Road.

W. Watertown Plank Road can be closed to through traffic between STH 100 and W. Innovation Drive for a weekend in April between 9:00 PM Friday night and 5:00 AM Monday morning. This closure is to construct 96-inch storm sewer and to reconstruct a MMSD manhole. During this weekend, the north, south, and west legs of the STH 100 intersection at W. Watertown Plank Road are open to through traffic. Maintain access to the Wauwatosa Fire Department and Crowne Plaza Hotel.

The intersection of W. Watertown Plank Road and W. Innovation Drive can be closed to traffic for a weekend between 9:00 PM Friday night and 5:00 AM Monday morning during Stage 2 construction. Maintain access to the Wauwatosa Fire Department and Crowne Plaza Hotel.

The IH 94 WB exit ramp to NB STH 100 will be closed during Stage 2 construction. All other IH 94 freeway ramps at STH 100 will remain open to traffic.

Detour Route: IH 94 WB exit ramp to NB STH 100
Traffic on IH 94 WB will be directed to USH 45 NB and exit at W. Bluemound Road WB to STH 100. Traffic on IH 894 NB will be directed to exit at W. Bluemound Road from USH 45 NB, and travel WB to STH 100.

Detour Route: EB W. Watertown Plank Road
Traffic on EB W. Watertown Plank Road will be directed north on 116th Street to EB North Avenue, enter USH 45 SB, and exit at W. Watertown Plank Road.

Detour Route: WB W. Watertown Plank Road
Traffic on WB W. Watertown Plank Road will be directed to enter USH 45 NB at W. Watertown Plank Road, exit at WB North Avenue west to 116th Street, and 116th Street south to W. Watertown Plank Road.

Stage 3A
W. Wisconsin Avenue, W. Potter Road, W. Research Drive, W. Watertown Plank Road, W. Innovation Drive, W. Mt. Vernon Avenue, W. Michigan Street, N. 110th Street, and the Wisconsin Access Road are open to through traffic during Stage 3A construction. Maintain two through lanes in each direction on STH 100 north of W. Wisconsin Avenue and on W. Watertown Plank Road as shown in the plan.

Keep one of the Taco Bell driveways at 510 N. Mayfair Road open at all times.

Maintain access at all times to the W. Bluemound Road driveway located at Station 151BE+59 LT for the Arvada Place Condominium's parking garage.

Stage construction at N. 110th Street to allow access to businesses and public parking south of W. Bluemound Road.

N. 109th Street, N. 108th Place, W. Hibbard Avenue, and N. 106th Street will be closed to through traffic during Stage 3A construction.

On W. Watertown Plank Road, stage construction to allow access to the businesses located in the northwest and southwest quadrants of the intersection at STH 100. Construction must be staged to allow access to Underwood Parkway from W. Watertown Plank Road.

The intersection of STH 100 and W. Bluemound Road can be closed to traffic between 12:01 AM July 20, 2013 and 12:01 AM August 1, 2013 during Stage 3A construction. No through traffic movements will be permitted at the intersection during this time. STH 100 can be closed north of W. Mt. Vernon Avenue and south of a point approximately 200 feet north of W. Bluemound Road. W. Bluemound Road can be closed east of N. 110th Street and west of N. 104th Street.

Detour Route: NB STH 100 – W. Bluemound Road
Traffic on NB STH 100 will be directed to enter IH 894/USH 45 NB from National Avenue, exit at W. Watertown Plank Road, and travel WB to STH 100 as the primary detour. The alternate detour route will direct traffic on NB STH 100 to enter IH 894/USH 45 NB from Lincoln Avenue, exit at W. Watertown Plank Road, and travel WB to STH 100. The tertiary detour route will direct traffic on NB STH 100 to enter IH 894/USH 45 NB from Greenfield Avenue, exit at W. Watertown Plank Road, and travel WB to STH 100. The quaternary detour route will direct traffic on NB STH 100 to enter IH 94 EB, exit at 84th Street, travel NB on 84th Street, enter IH 94 WB to USH 45 NB, exit at W. Watertown Plank Road, and travel WB to STH 100.

Detour Route: SB STH 100 – W. Bluemound Road
Traffic on SB STH 100 will be directed to enter USH 45 SB from W. Watertown Plank Road, take USH 45 SB to IH 94 WB, and exit at SB STH 100 as the primary detour. The alternate detour route will direct traffic on SB STH 100 to enter USH 45 SB from W. Wisconsin Avenue, take USH 45 SB to IH 94 WB, and exit at SB STH 100.

Detour Route: EB W. Bluemound Road
Traffic on EB W. Bluemound Road will be directed to SB Moorland Road, enter IH 94 EB to exit at 84th Street, and travel NB to W. Bluemound Road. An alternate route will direct traffic on EB W. Bluemound Road to SB Sunnyslope Road, travel SB on Sunnyslope Road, and take Greenfield Avenue EB to IH 894/USH 45. An alternate detour route to NB STH 100 will direct traffic on EB W. Bluemound Road to NB N. 115th Street, and travel EB W. Potter Road to STH 100. A second alternate detour route to SB STH 100 will direct traffic on EB W. Bluemound Road to take N. 121st Street SB to W. Theodore Trecker Way, and travel EB to STH 100.

Detour Route: WB W. Bluemound Road
Traffic on WB W. Bluemound Road will be directed NB on 97th Street to enter USH 45 SB at W. Wisconsin Avenue, take USH 45 SB to IH 94 WB, and exit at NB Moorland Road to W. Bluemound Road. An alternate detour route to WB W. Bluemound Road will direct traffic on SB STH 100 to take W. Potter Road WB to N. 115th Street, and travel SB to W. Bluemound Road. A second alternate detour route to WB W. Bluemound Road will direct traffic on NB STH 100 to take W. Theodore Trecker Way WB to N. 121st Street, and travel NB to W. Bluemound Road.

The IH 94 WB exit ramp to NB STH 100 will be closed during Stage 3A construction. All other IH 94 freeway ramps at STH 100 will remain open to traffic.

Detour Route: IH 94 WB exit ramp to NB STH 100
Traffic on IH 94 WB will be directed to USH 45 NB and exit at W. Watertown Plank Road WB to STH 100. Traffic on IH 894 NB will be directed to exit at W. Watertown Plank Road from USH 45 NB, and travel WB to STH 100.

Stage 3B
W. Bluemound Road, W. Wisconsin Avenue, W. Potter Road, W. Research Drive, W. Innovation Drive, W. Michigan Street, N. 110th Street, N. 109th Street, N. 108th Place, W. Hibbard Avenue, N. 106th Street, and the Wisconsin Access Road are open to through traffic during Stage 3B construction. Maintain two through lanes in each direction on STH 100 south of W. Watertown Plank Road as shown in the plan. Maintain three through lanes in each direction on W. Bluemound Road at STH 100. All IH 94 freeway ramps at STH 100 are open to traffic during Stage 3B.

W. Mt. Vernon Avenue and Hospital Access Road will be closed to through traffic during Stage 3B construction. Stage construction to allow direct access to the Wheaton-Franciscan Hospital urgent care center and parking structure.

On W. Watertown Plank Road, stage construction to allow access to the businesses located in the northwest and southwest quadrants of the intersection at STH 100. Construction must be staged to allow access to Underwood Parkway from W. Watertown Plank Road.

The intersection of STH 100 and W. Watertown Plank Road can be closed to traffic between 12:01 AM August 1, 2013 and 5:00 AM August 5, 2013 during Stage 3B construction. No traffic movements will be permitted at the intersection during this time. STH 100 can be closed north of a point approximately 350 feet south of W. Watertown Plank Road and south of a point approximately 300 feet north of W. Watertown Plank Road.

The segment of W. Watertown Plank Road between Station 15WEB+81.40 and Station 32WEB+75.00 can be closed to eastbound and westbound traffic between 12:01 AM August 1, 2013 and 12:01 AM August 11, 2013 during Stage 3B construction.

Detour Route: NB STH 100 - W. Watertown Plank Road
Traffic on NB STH 100 will be directed to enter IH 894/USH 45 NB from Greenfield Avenue and exit at Mayfair Road as the primary detour. The alternate route will direct traffic on NB STH 100 to W. Wisconsin Avenue, travel EB on W. Wisconsin Avenue and enter USH 45 NB to exit at Mayfair Road. Another alternate detour route will direct traffic on NB STH 100 to enter IH 894/USH 45 NB from Greenfield Avenue, exit at Burleigh Street, and travel EB to STH 100.

Detour Route: SB STH 100 - W. Watertown Plank Road
Traffic on SB STH 100 will be directed to enter USH 45 SB from WB North Avenue, take USH 45 SB to IH 94 WB, and exit at SB STH 100 as the detour route.

Detour Route: EB W. Watertown Plank Road
Traffic on EB W. Watertown Plank Road will be directed north on 116th Street to EB North Avenue, enter USH 45 SB, and exit at W. Watertown Plank Road.

Detour Route: WB W. Watertown Plank Road
Traffic on WB W. Watertown Plank Road will be directed to enter USH 45 NB at W. Watertown Plank Road, exit at WB North Avenue west to 116th Street, and 116th Street south to W. Watertown Plank Road.

Stage 3C
STH 100, W. Bluemound Road, W. Wisconsin Avenue, W. Potter Road, W. Research Drive, W. Watertown Plank Road, W. Innovation Drive, W. Michigan Street, N. 110th Street, N. 109th Street, N. 108th Place, W. Hibbard Avenue, N. 106th Street, and the Wisconsin Access Road are open to through traffic during Stage 3C construction. Maintain two through lanes in each direction on STH 100 and W. Watertown Plank Road as shown in the plan. Maintain three through lanes in each direction on W. Bluemound Road at STH 100. All IH 94 freeway ramps at STH 100 are open to traffic during Stage 3C.

W. Mt. Vernon Avenue and the Hospital Access Road will be closed to through traffic during Stage 3C construction. Stage construction to allow direct access to the Wheaton-Franciscan Hospital urgent care center and parking structure.

Stage 4
All roadways and freeway ramps are open to through traffic during Stage 4 construction. Maintain a minimum of two through lanes in each direction on STH 100, W. Bluemound Road, and W. Watertown Plank Road as shown in the plans. Stage construction to allow access at side road intersections.

Stage 5
All roadways and freeway ramps are open to through traffic during Stage 5 construction. Use single lane closures during Off-Peak Hours on STH 100, W. Bluemound Road, and W. Watertown Plank Road to finish perennial and decorative grass landscape planting.

6. 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 AM - noon on Wednesdays at the Zoo Interchange project office located at 2424 S. 102nd Street, West Allis, WI 53227 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 between the contractor and engineer during the 11:00 AM meeting. The 11:00 AM meeting is mandatory for the prime contractor and the traffic control subcontractor.

Every Wednesday at 2:00 PM, or as scheduled by the engineer, attend a weekly traffic meeting. The meeting is mandatory for the prime contractor. 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.

7. Holiday and Special Event Work Restrictions.

Unless written approval is obtained from the engineer 7 calendar days prior to the holiday period, do not perform work on, nor haul materials of any kind along or across any portion of the highways carrying STH 100, W. Bluemound Road or W. Watertown Plank Road traffic, and entirely clear the traveled way and shoulders of such portions of the highway of equipment, barricades, signs, lights, and any other material that might impede the free flow of traffic during the following holiday periods:

- From 6:00 AM Friday, May 3, 2013 to 6:00 AM Sunday, May 5, 2013 during the Wisconsin Lutheran College all-conference college track meet;
- From noon Friday, May 24, 2013 to 6:00 AM Tuesday, May 28, 2013 for Memorial Day;
- From noon Wednesday, July 3, 2013 to 6:00 AM Friday, July 5, 2013 for Independence Day;
- From noon Friday, August 30, 2013 to 6:00 AM Tuesday, September 3, 2013 for Labor Day;

- From noon Wednesday, November 27, 2013 to 6:00 AM Monday, December 2, 2013 for Thanksgiving;
- On weekend days during Zoo a la Carte, August 17, 2013 to August 18, 2013, until two hours after the event.

8. Utilities.

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

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

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

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 may be performing utility work and adjustments within the limits and throughout the life of the project. Cooperate and coordinate construction activities with these companies.

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

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

Known utilities in the projects are as follows:

AT&T Corporation has underground communication facility running along the northeast right-of-way of the IH 94 off ramp for Northbound STH 100 to Station 577SN+85, 67’ where it turns and runs west, crossing STH 100 at Station 577SN+96, and continues running westerly along the north right-of-way of the IH 94 Westbound onramp. This facility will remain in place without adjustment.

Contact Bob Andersen, (618) 303-3533 cell, of JMC, Inc. 7 days in advance to coordinate locations and any excavation near their facilities.

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

- An underground communication line along the east side of STH 100 throughout the project limits. AT&T Wisconsin will relocate these facilities as necessary prior to construction.
- An underground communications line in the westbound lanes of Bluemound Road throughout the project limits. AT&T Wisconsin will relocate these facilities as necessary prior to construction.
- An underground communications line in the eastbound lanes of Watertown Plank Road throughout the project limits. AT&T Wisconsin will relocate these facilities as necessary prior to construction.

Contact Mark Szymanski, (414) 535-7417 office / (414) 491-2853 cell, of AT&T Wisconsin 7 days in advance to coordinate locations and any excavation near their facilities.

Midwest Fiber Networks has underground communication facilities within the project limits in the following locations:

- An underground communication line in WisDOT STOC ducts in the median of STH 100 throughout the project limits. Midwest Fiber Networks will relocate these facilities as necessary prior to construction.
- An underground communications line in the eastbound lanes of Watertown Plank Road throughout the project limits. Midwest Fiber Networks will relocate these facilities as necessary prior to construction.

Contact Richard Trgovec, (414) 459-3554, of CableCom, LLC 7 days in advance to coordinate locations and any excavation near their facilities.

Milwaukee, City of - Lighting has underground and overhead lighting facilities beginning at the intersection of STH 100 and Bluemound Road and running east along Bluemound Road to beyond the easterly project limits. Adjust, abandon, remove, leave in place, and reconstruct portions of the lighting facilities as shown in the plans.

City of Milwaukee will temporarily remove lighting facilities at the intersection of Bluemound Road and North 106th Street prior to construction. The city will re-install the facilities upon completion of construction. The city will install temporary lighting behind the curb on both sides of Bluemound Road between Station 165BE+82 to 171BE+50 during construction.

City of Milwaukee lighting at the intersection of Hwy 100 and Bluemound Road is maintained by the City of Wauwatosa under an agreement with the City of Milwaukee.

Contact Dennis Miller, (414) 286-5942 office / (414) 708-5942 cell, of the City of Milwaukee 10 days in advance to coordinate removal, reconstruction, and reconnection of the street lighting system.

Milwaukee, County – Electrical and Communications has underground electrical and communication facilities along Innovation Drive within the project limits. These facilities will remain in place without adjustment.

Contact Karl Stave, (414) 278-4863, of Milwaukee County 7 days in advance to coordinate locations and any excavation near their facilities.

Milwaukee, County – Sanitary has underground sanitary sewer facilities beginning at the intersection of STH 100 and Watertown Plan Road and running east along the north side of Watertown Plank Road to beyond the easterly project limits. Adjust and reconstruct the sanitary sewer facilities as shown in the plans.

Contact Karl Stave, (414) 278-4863, of Milwaukee County 7 days in advance to coordinate locations and any excavation near their facilities.

Milwaukee, County – Storm has underground storm sewer facilities throughout the project limits. Adjust, abandon, remove, leave in place, and reconstruct the storm sewer facilities as shown in the plans.

Contact Karl Stave, (414) 278-4863, of Milwaukee County 7 days in advance to coordinate locations and any excavation near their facilities.

Milwaukee, County – Water has underground water facilities along the west side of Innovation Drive. These facilities will remain in place without adjustment.

Contact Karl Stave, (414) 278-4863, of Milwaukee County 7 days in advance to coordinate locations and any excavation near their facilities.

Milwaukee Metropolitan Sewerage District (MMSD) has underground sanitary sewer facilities within the project limits in the following locations:

- An underground sanitary sewer line beginning beyond the southerly project limits and running northerly along the east side of STH 100 to Station 579SN+40, 27’RT where it runs westerly and ends at a manhole at Station 579SN+41, 68’LT. Adjust, abandon, remove, leave in place, and reconstruct portions of the manhole as shown in the plans.
- An underground MIS sanitary sewer beginning beyound the westerly project limits and running easterly along the north side of Watertown Plank Road to a manhole at Station 16WEB+83, 48’LT, where it continues easterley to a manhole at Station 21WEB+55, 60’LT, then run northeasterly to a manhole at Station 631SN70+97’LT, then it runs north in STH 100 to a manhole at Station 638SN+37, 49’LT, then continues north beyond the northerly project limits. MMSD to reconstruct manhole at Station 21WEB+55, 60’LT during construction. Allow MMSD 4 days to complete manhole reconstruct. Contact Larry Anderson, (414) 225-2241 office / (414) 617-1429 cell, three days prior to pre-construction meeting to coordinate reconstruct.MMSD to reconstruct manhole at Station

631SN70+97'LT during construction. Allow MMSD 4 days to complete manhole reconstruct. Contact Larry Anderson, (414) 225-2241 office / (414) 617-1429 cell, three days prior to pre-construction meeting to coordinate reconstruct. MMSD will adjust manhole at Station 638SN+37, 50'LT during construction. Contact Larry Anderson, (414) 225-2241 office / (414) 617-1429 cell, 3 days prior to construction for manhole adustment.

- An underground sanitary sewer forcemain beginning beyound westerly project limits and running northeasterly and crossing Watertown Plank Road at Station 16WEB+37 and continuing northeasterly to a manhole at Station 16WEB+97, 31'LT, and runs easterly in Watertown Plank Road to a manhole at Station 21WEB+41, 2'RT, then runs west in Watertown Plan Road and crosses STH 100 at Station 630SN+70', and continues to a manhole at Station 24WEB+91, 6' RT, and continues running west in Watertown Plank Road beyound the easterly project limits. MMSD will adjust manholes at Station 16WEB+97, 31'LT, 50'LT and 21WEB+41, 2'RT during construction. Contact Larry Anderson, (414) 225-2241 office / (414) 617-1429 cell, 3 days prior to construction for manhole adustment. Adjust, abandon, remove, leave in place, and reconstruct portions of manhole at Station WEB92+92, 6'RT as shown in the plans.
- An underground sanitary sewer beginning at a manhole located at the west side of STH 100 at Station 628SN+07, 96'LT and running northerly along the west side of STH 100, crossing Watertown Plank Road at Station 21WEB+78, and continuing northerly along the west side of STH 100 to beyond the northerly project limits. MMSD to reconstruct manhole at Station 628SN+07, 100'LT during construction. Allow MMSD 4 days to complete this reconstruct. Contact Larry Anderson, (414) 225-2241 office / (414) 617-1429 cell, 3 days prior to pre-construction meeting to coordinate reconstruct.

Adjust, abandon, remove, leave in place, and reconstruct the sanitary sewer facilities as shown in the plans.

Contact Robert Rebitski, (414) 225-2214, of MMSD 7 days in advance to coordinate locations and any excavation near their facilities.

Sprint has an underground communication line beginning beyond the southerly project limits and running northerly along the west side of the Union Pacific Railroad to beyond the northerly project limits. Sprint will relocate portions of these facilities as necessary prior to construction.

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

TCG has overhead and underground communications line within the project limits in the following locations:

- An overhead line starts west of the project limits and runs easterly along the south right-of-way line of Watertown Plank Road to Station 28WEB+48, 45'RT. This line will be removed prior to construction.
- An underground starting at 19WEB+38, 52LT and running southerly to Station 19WEB+60, 34'RT, then runs north to Station 28WEB+10, 34'RT. This line will be abandoned prior to construction.
- An underground communications facility starting at Station 28WEB+48, 45'RT and running easterly to Station 29WEB+70, 52'RT. This line will be abandoned prior to construction.
- TCG will remove handhole at Station 28WEB+70, 52'RT and cap lateral conduit running to the south.

Contact Don Dietsch, (262) 646-5602 office / (414) 651-2862 cell, of Northwind Technical Services 7 days in advance to coordinate locations and any excavation near their facilities.

TDS MetroCom has an underground communications line beginning beyond the westerly project limits and running easterly along Watertown Plank Road to beyond the easterly project limits. TDS MetroCom will relocate these facilities as necessary prior to construction.

Contact Michael Johnson, (262) 754-3052 office / (262) 939-6355 cell, of TDS MetroCom 7 days in advance to coordinate locations and any excavation near their facilities.

Time Warner Cable has overhead and underground communication facilities throughout the project limits. Time Warner Cable will relocate these facilities as necessary prior to construction.

Contact Lukas LaCrosse, (414) 908-4766 office / (414) 430-9321 cell, of Time Warner Cable 7 days in advance to coordinate locations and any excavation near their facilities.

TW Telecom has an underground communications line beginning beyond the westerly project limits and running easterly along Watertown Plank Road to beyond the easterly project limits. TW Telecom will relocate these facilities as necessary prior to construction.

Contact John Cottrell, (414) 908-1011 office / (414) 908-1027 cell. of TW Telecom 7 days in advance to coordinate locations and any excavation near their facilities.

Union Pacific Railroad (UPRR) has overhead communication facilities beginning beyond the southerly project limits and running northerly along the west side of the UPRR to beyond the northerly project limits. UPRR will remove portions of these facilities as necessary prior to construction.

Contact John Venice, (312) 777-2043, of the UPRR 7 days in advance to coordinate locations and any excavation near their facilities.

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

- An underground waterline beginning at a Hydrant at Station 578SN+75, 77' LT, and runs north along the west side of STH 100 to a bend in the watermain at Station 582SN+78, 81'LT, and runs northwesterly where it crosses W. Mt. Vernon Avenue at Station 13MV+80, and continues northwesterly to the south side of Bluemund Road at Station 591SN+92, 233'LT, then runs westerly along the south line of Bluemound Road to beyond the westerly project limits. Abandon, remove, and reconstruct this facility as shown in the plans.
- An underground waterline crossing at Station 157BE+09.
- An underground waterline beginning beyond the westerly project limits and runs along the middle of Bluemound Road to a bend at Station 157BE+09, 14'LT, and runs northeasterly to a bend at Station 157BE+51, 97'LT, thens runs northerly in N. 108th Place to beyond the project limts.
- An underground waterline beginning northerly of the project limit at Bluemound Road and N. 107th Street, and runs south in N. 107th Street to Station 163BE+09, 99'LT, and runs westerly in Bluemound Road and and at Hydrant at Station 161BE+37, 131' LT.
- An underground waterline begininning at a watermain tee at Station 593SN+40, 95'RT, and runs northerly to a bend at Station 594SN+33, 99'RT, and runs northwesterly to a bend at Station 602SN+95, 15' LT, and runs northeasterly to a bend at Station 603SN+25, 13' RT, and runs easterly to a bend at Station 603SN+25, 57'RT, and runs northeasterly to a bend at Station 603SN+62, 97' RT, and runs northerly and ending at tee at Station 604SN+48, 97'. Abandon, remove, and reconstruct this facility as shown in the plans.
- An underground waterline beginning beyond the westerly project limits and running easterly and crossing STH 100 at Station 604SN+48, and continuiong easterly to beyond the project limts.
- An underground waterline beginning beyond the westerly project limits and running easterly and crossing STH 100 at Station 604SN+56, and continuiong easterly to beyond the project limts.
- An underground waterline beginning at a hydrant at Station 601SN+96, 85'LT, and runs northerly along the west side of STH 100 and ties in watermain at Station 604SN+37, 89' LT.
- An underground waterline beginning at a tee at Station 604SN+51, 37'RT, and runs northerly along the east side of STH 100 and ending at a tee in W. Research Drive at Station 614SN+61, 36'RT. Contractor to relocate hydrants at Stations 606SN+65, 54'RT and Station 610SN+80,66' RT as shown in the plans.
- An underground waterline beginning at Station 611SN+50, 94'LT, and run north along the west side of STH 100, and crosses W. Potter Road at Station 49P+52', and continues north along the west side of STH 100 to a bend at Station 629SN+90, 104LT, and runs northwesterly to a bend at Station 630SN+25, 160'RT, and runs northerly and crossess Watertown Plank Road at Station 21WEB+15, and runs north to a bend at Station 631+09, 159'LT, and runs northeasterly to a bend at Station 631SN+42, 131'LT, and runs northerley along

the west line of STH 100 beyond the projects northerly limits. Contractor to relocate hydrants at Stations 611SN+47, 87'LT, 614SN+78, 110'LT, 628SN+35, 99'LT and Station 632SN+37, 120'LT as shown in the plans.

- An underground waterline beginning beyond the westerly project limits, and runs easterly in W. Potters Road and ends at a tee at Station 49P+53' 09'LT.
- An underground waterline beginning at Station 49P+51, 36'LT, and runs easterlery and crosses STH 100 at Station 614SN+62, and continues easterly in W. Research Drive beyond the projects easterly limits.
- An Underground watermain starting at Station 614SN+62, 55'RT, and continues northeasterly to a bend at Station 615SN+02, 21'RT, and runs northerly along the east side of STH 100 to a bend at Station 626SN+22, 02'RT, and runs northeasterly to a bend at Station 626SN+47, 27'RT, and runs northerly to a bend at Station 629SN+67, 24'RT, and runs northeasterly to a bend at Station 630SN+34, 44'RT, and runs easterly along the south side of Watertown Plank Road and ends at Station 35WEB+40, 39'RT. Contractor to relocate hydrants at Station 615SN+27, 83'RT, Station 616SN+81, 62'RT, Station 618SN+86, 62'RT, Station 622SN+68, 62'RT, Station 626SN+48, 62'RT, Station 23WEB+91, 58'RT, Station 27WEB+04', 41'RT, and at Station 30WEB+33, 54, as shown on plans.
- An underground watermain crossing Watertown Plan Road at Station 24WEB+02.
- An underground watermain crossing Watertown Plan Road at Station 35WEB+37.
- An underground watermain starting at Station 24WEB+00, 48'LT, and runs easterley along the north side of Watertown Plan Road and ends at Station 35WEB+39, 48'LT. Contractor to relocate hydrants at Station 24WEB+11, 99'LT, 26WEB+64, 90'LT, 30WEB+75, 79'LT, and at Station 35WEB+27, 93'as shown on plans. Contractor to install water main exension at Station 33WEB+77, 66'LT as shown on plans.
- An underground waterline beginning at Station 628SN+05, 92'LT, runs easterly and crosses STH 100 at Station 628SN+05, and continues easterly to where it ends at Station 628SN+04, 25'RT.
- An underground waterline beginning beginning beyond the westerly project limits, and runs on the north side of Watertown Plan Road to a bend at Station 18WEB+84', 92'LT, and runs southeasterly and crosses Watertown Plank Road at Station 18WEB+21, and continues southeasterly to a bend at Station 18WEB+31, 22'RT, and runs easterly along the south line of Watertown Plank Road and ends at Station 21WEB+19, 34'RT. Abandon, remove, and reconstruct this facility as shown in the plans.

Adjust, abandon, remove, leave in place, and reconstruct the water facilities as shown in the plans.

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

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

- An underground sanitary sewer beginning at a manhole located in the southbound lane of STH 100 at Station 578SS+71, 34'LT and running north to a manhole at Station 583SS+91, 33'LT where it turns and runs northwesterly to a manhole at Station 585+78, 61' LT. Abandon, remove, and reconstruct this facility as shown in the plans.
- An underground sanitary sewer beginning at a manhole along the south right-of-way of Bluemound Road at Station 158BE+06, 72' RT and running westerly to a manhole at Station 153BE+08, 78' RT where it turns and runs north to a manhole at Station 153BE+02, 40' RT. From there it turns and runs westerly to beyond the westerly project limits. This line will remain in place without adjustmtnt.
- An underground sanitary sewer beginning at a manhole located outside the east right-of-way of STH 100 at Station 593SN+96, 95'RT and running northwesterly to Station 603SN+10, 32'LT, where it turns and runs northeasterly to manhole at Station 604SN+07, 68'RT. From there it turns and runs easterly along the south side of Wisconsin Avenue to beyond the easterly project limits. Abandon, remove, and reconstruct this facility as shown in the plans.
- An underground sanitary sewer beginning at a manhole along the south side of Wisconsin Avenue at Station 603SN+68, 28' and running southeasterly to a manhole at Station 11+52MI, 7' LT where it continues southeasterly to beyond the project limits. Abandon, remove, and reconstruct this facility as shown in the plans.
- An underground sanitary sewer beginning from beyond the southerly project limits and running northerly, crossing the mobile driveway at Station 10XD+13 to beyond the project limits. This line will remain in place without adjustment.
- An underground sanitary sewer beginning beyond the easterly project limits of Research Drive and running northwesterly to a manhole at Station 13R+54, 34' LT where it turn and runs west along the north side of Research Drive to a manhole at Station 10R+75, 34' LT. From there it turns and runs north to a manhole at Station 618SN+15, 75' RT where it turns and runs west, crossing STH 100 at Station 618SN+15, to a manhole at Station 618SS+13, 67' LT. From there it turns and runs north along the west right-of-way of STH 100 to 628SS+07, 60' LT where it turns and runs east to a MMSD manhole at Station 628SS+07, 51' LT. This sewer will remain in place without adjustment.
- An underground sanitary sewer beginning at a MMSD manhole located at the west side of STH 100 at Station 628SS+07, 51'LT and runs northeasterly to a manhole at Station 628SS+11, 43'LT where it turns and runs east, crossing STH 100 at Station 628SN+01, to a manhole at Station 627SN+97, 39'RT. From there it turns and runs northeasterly to a manhole at Station 629SN+41, 108'RT where it turns and runs east to beyond the easterly project limits of STH 100. The City of Wauwatosa will abandon this sewer between a manhole at Station 628SS+11, 43'LT to a manhole at Station 627SN+97, 39'RT. The City of Wauwatosa will construct a new sanitary sewer from a manhole at Station

628SS+07, 51'LT manhole, running northeasterly to a manhole at Station 628SS+11, 43'LT, then run northeasterly to a manhole at Station 628SN+76, 77'RT where it turns and runs northeasterly to a manhole at Station 629SN+41, 108'RT and connects into existing facilities. The City of Wauwatosa will reconstruct these manholes prior to construction.

- An underground sanitary sewer beginning at a manhole located at Station 16WEB+85, 42'LT and running south to a manhole at Station 16WEB+89, 39' RT where it turns and along the south right-of-way of Watertown Plank Road to a manhole located at Station 19WEB+70. City of Wauwatosa will reconstruct manholes at Station 16WEB+89, 39'RT and at Station 19WEB+65, 41'RT prior to construction.
- An underground sanitary sewer beginning from beyond the westerly project limits of Innovation drive running east to a manhole at Station 162NV21+00 where it continues east to beyond the easterly project limits. Abandon, remove, and reconstruct this facility as shown in the plans.
- An underground sanitary sewer beginning at the previously described manhole at Station 162NV+18, 11'LT and running southerly in the median of Innovation Drive to beyond the southerly project limits. Abandon, remove, and reconstruct this facility as shown in the plans.

Contact Mike Maki, (414) 497-8991, 3 days prior to sanitary work for inspection.

Contact Mike Maki, (414) 497-8991, of City of Wauwatosa - Sewer 7 days in advance to coordinate locations and any excavation near their facilities.

Wauwatosa, City of – Lighting has underground and overhead lighting facilities along STH 100 and Watertown Plank Road throughout the project limits. Adjust, abandon, remove, leave in place, and reconstruct the lighting facilities as shown in the plans.

Contact Joe Kroll, (414) 479-8934, of City of Wauwatosa 7 days in advance to coordinate locations and any excavation near their facilities.

Wauwatosa, City of – Signals has overhead and underground signal facilities at the intersection of Innovation Drive/Watertown Plank Road. Adjust, abandon, remove, leave in place, and reconstruct the signal facilities as shown in the plans.

Contact Bill Wehrley, (414) 479-8929 office / (414) 471-8422 cell, of City of Wauwatosa 7 days in advance to coordinate locations and any excavation near their facilities.

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

- Underground electric lines along the STH 100 throughout the project limits. We Energies will relocate portions of these facilities as necessary prior to construction.
- Overhead electric lines crossing Mayfair Road (STH 100) beginning at an existing pole at Station 579+77, 124'RT then running westerly, crossing STH 100

at Station 579+72 to an existing pole at Station 579+69, 54'LT then running westerly along the north property line of Parcel 1 of right-of-way Plat 1060-33-22 to an existing pole at Station 579+81, 531'LT then running northerly out of the projects limits. The existing line will remain in place without adjustment.

- Underground electric line beginning at a WisDOT cabinet at Station 577+84, 282'LT then running northeasterly and following the existing right-of-way to an existing pole at Station 579+69, 54'LT.
- The 4 manholes are located at Station 154BE+72 RT 15', Station159BE+06 RT 06', Station160BE+67 RT 16', and Station162BE+86 RT 13'. We Energies - Electric will remove the cover, and plate the manholes. The road contractor must grade around the manholes. When grade is established, the chimney and cover will be rebuilt. The road contractor must coordinate with We Energies on the chimney adjustments. The conduit will remain, and the contractor must follow the plating procedure when working directly over the duct package. The laterals at Station 155BE+13, 157BE+86, 159BE+55, 161BE+20, 161BE+68, and 163BE+00 will be crossing the existing conduit.
- Underground electric lines along Bluemound Road throughout the project limits. We Energies will relocate portions of these facilities as necessary prior to construction.
- Underground electric lines along Wisconsin Avenue throughout the project limits. We Energies will relocate portions of these facilities as necessary prior to construction.
- Underground electric lines along West Potter Road throughout the project limits. We Energies will relocate portions of these facilities as necessary prior to construction.
- Underground electric lines along Research Drive throughout the project limits. We Energies will relocate portions of these facilities as necessary prior to construction.
- Underground electric lines along Watertown Plank Road throughout the project limits. We Energies will relocate portions of these facilities as necessary prior to construction.
- Underground electric lines along Innovation Drive throughout the project limits. We Energies will relocate portions of these facilities as necessary prior to construction.
- Overhead electric lines along the UPRR throughout the project limits. We Energies will relocate portions of these facilities as necessary prior to construction.
- The electric conduit package along W Bluemound Rd. that crosses over the Union pacific railroad tunnel will remain energized. We Energies will de-energize and remove the cable from the conduit package shortly before construction on the tunnel roof begins. This is to minimize the duration that the feeder will be de-energized. The contractor must notify We Energies 14 days before work on the tunnel begins. Immediately after the roof is rebuilt, and before the intersection is opened, we will rebuild the conduit package over the tunnel.
- There are numerous traffic control and lighting cabinets throughout the project that will remain energized until we receive notice to disconnect the services. We

plan on relocating most of the equipment feeding these services, but the energized cable will remain. The road contractor will have to work around the cables until the services are disconnected.

We Energies will remove, replace, leave in place and reconstruct portions of these facilities prior to construction as noted below:

Station No.	Sequence No.	Pole No.	Work Proposed
579SN+70, LT 88’	105	72-9823	Pole to be removed
579SN+74, LT 116’	100	12-	Pole to be installed
579SN+70, LT 88’ to 579SN+40, LT 91’	105 to 200		Underground cable to be abandoned
579SN+70, LT 88’ to 578SN+63, LT 94’	105 to 210		Underground cable to be abandoned
579SN+74, LT 116’ to 579SN+40, LT 91’	100 to 200		Underground cable to be installed
579SN+74, LT 116’ to 579SN+22,LT 94’ to 578SN+63, LT 94’	100 to 210		Underground cable to be installed
579SN+78, RT 90’	110	55-0924	Pole to remain with anchor
581SN+50, RT 66’	125	55-0925	Pole to be removed
581SN+56, RT 70’	120	12-	Install new pole
583SN+12, RT 35’	135	61-1558	Pole to be removed
583SN+12, RT 66’	130	12-	Install new pole with anchor
579SN+40, LT 91’ to 578SN+21, LT 97’			Existing underground cable to remain
578SN+63, LT 94’ to 578SN+07, LT 157’ to 577SN+73, LT 359’			Existing underground cable to remain

Station No.	Sequence No.	Pole No.	Work Proposed
162BE+47, RT 98’	100	71-13727	Pole to remain
162BE+49, RT 74’	110	12-	Install new pole with anchor
162BE+54, RT 21’	105	07-05112	Pole to be removed
162BE+58, LT 102’	115	02-05241	Pole to be removed
162BE+49, RT 74’ to 162BE+68, LT 112’	110 to 210		Install underground cable
162BE+58, LT 102’ to 162BE+68, LT 112’	115 to 210		Abandon underground cable
162BE+47, RT 98’ to 162BE+37, RT 21’	100 to 200		Install underground cable

Station No.	Sequence No.	Pole No.	Work Proposed
162BE+54, RT 21' to 162BE+37, RT 21'	105 to 200		Abandon underground cable
162BE+37, RT 21' to 161BE+91, RT 21' to 161BE+44, RT 53' to 161BE+43, RT 66'			Existing underground cable to remain
162BE+68, LT 112' to 162BE+90, LT 108' to 163BE+00, LT 113' to 163BE+05, LT 143'			Existing underground cable to remain
154BE+72, RT 15' to 158BE+76, RT 9' to 159BE+6, RT 24' to 160BE+65, RT 14' to 160BE+74, RT 16' to 171BE+00, RT 36' and beyond Paving Limits			Existing underground conduit, cable, and manholes to remain
163BE+27, RT 13' to 11HB+59, LT 4'			Existing underground conduit, cable, and manholes to remain

Station No.	Sequence No.	Pole No.	Work Proposed
583SN+12, RT 35 to 583SN+17, LT 11	100 to 115		Abandon Conduit
583SN+17, LT 11	115	MH71-650	Abandon Manhole
583SN+17, LT 11 to 588SN+59, LT 8	115 to 125		Abandon Conduit
588SN+59, LT 8	125	MH71-649	Abandon Manhole
588SN+59, LT 8 to 591SN+93, RT 13	125 to 130		Abandon Conduit
591SN+93, RT 13	130	MH71-648	Manhole to Remain
591SN+93, RT 13 to 597SN+67, LT 36	130 to 145		Abandon Conduit
597SN+67, LT 36	145	MH71-647	Abandon Manhole
597SN+67, LT 36 to 597SN+70, LT 97	145-150		Abandon Conduit

Station No.	Sequence No.	Pole No.	Work Proposed
159BE+14, RT 23’ to 160BE+62, RT 16.5’	100 to 110		Abandon Conduit

Station No.	Sequence No.	Pole No.	Work Proposed
159BE+14, RT 23’ to 160BE+62, RT 16.5’	100 to 110		Rebuild Conduit

Station No.	Sequence No.	Manhole No.	Work Proposed
154BE+72 RT 15’	15	MH71-645	Remove chimney, frame, and cover
159BE+06 RT 06’	25	MH71-646	Remove chimney, frame, and cover
160BE+67 RT 16’	35	MH71-648	Remove chimney, frame, and cover
162BE+86 RT 13’	45	MH71-651	Remove chimney, frame, and cover

Station No.	Sequence No.	Manhole No.	Work Proposed
154BE+72 RT 15’	10	MH71-645	Install chimney, frame, and cover
159BE+06 RT 06’	20	MH71-646	Install chimney, frame, and cover
160BE+67 RT 16’	30	MH71-648	Install chimney, frame, and cover
162BE+86 RT 13’	40	MH71-651	Install chimney, frame, and cover

Station No.	Sequence No.	Pole No.	Work Proposed
603SN+70, LT 185’	200	06-08143	Pole to remain
602SN+12, LT 159’	210	55-0940	Pole to remain
602SN+12, LT 159’ to 601SN+58, LT 144’	210 to 220		Underground cable to be installed
601SN+58, LT 144’ to 601SN+58, RT 68’	220 to 230		Underground road crossing to be installed
601SN+58, RT 68’ to 601SN+96, RT 105’	230 to 240		Underground cable to be installed
601SN+96, RT 105’	240	12-	Pole to be installed
601SN+75, RT 89’	250	12-	Pole to be installed with guys and
600SN+56, LT 134’	260	55-0939	Pole to remain with guys and anchors
598SN+99, LT 113’	270	55-0938	Pole to remain

Station No.	Sequence No.	Pole No.	Work Proposed
597SN+66, LT 96’	275	72-12994	Pole to be removed
597SN+41, LT 94’	285	55-0937	Pole to be removed
601SN+24, LT 84’	295	81-03968	Pole to be removed
601SN+40, RT 21’	305	99-08022	Pole to be removed
601SN+55, RT 91’	315	51-4268	Pole to be removed
602SN+15, RT 143’	325	88T12518	AT&T to remove pole
602SN+75, RT 158’	335	09T10144	AT&T to remove pole
602SN+81, RT 156’	330	12-	Pole to be installed
600SN+94, RT 111’	310	85-01838	Pole to remain

WR#3228582			
Station	**Offset**	**Ref Pt#**	**Proposed Work**
09MV+43	52'RT	100	Exisitng pole 72-9981 reframe with new tap to the east
09MV+43 to 09MV+56.8	52'RT to 52'RT	100 to 110	New overhead distribution cable
09MV+56.8	52'RT	110	New pole with switch and risers
09MV+56.8 to 09MV+56.8	52'RT to 26.5'LT	110 to 120	Directional boring new high voltage 500kcmil cable
09MV+56.8	26.5'LT	120	Splice pit
09MV+56.8 to 08MV+09	26.5'LT to 25.8'LT	120 to 130	Directional boring new high Voltage 500kcmil cable
08MV+09	25.8'LT	130	Splice pit
08MV+09 to 153BE+24	25.8'LT to 47'RT	130 to 140	Directional boring new high Voltage 500kcmil cable
153BE+24	47'RT	140	Splice pit
153BE+24 to	47'RT to	140 to 150	Directional boring new high voltage 500kcmil cable
154BE+95	42.5'RT	150	Splice pit
154BE+95 to 154BE+95	42.5'RT to 97'LT	150 to 160	Directional boring new high voltage 500kcmil cable in duct
154BE+95	97'LT	160	Splice pit
154BE+95 to	97'LT to	160 to 170	Directional boring new high voltage 500kcmil cable
11TR+69.5	26'LT	170	Splice pit
11TR+69.5 to 11TR+69.5	26'LT to 40.5'RT	170 to 180	Directional boring new high voltage 500kcmil cable in duct
11TR+69.5	40.5'RT	180	Splice pit
11TR+69.5 to	40.5'RT to 43'RT	180 to 190	Open cut and installing new high voltage 500kcmil cable
11TR+68	43'RT	190	Locating pedestal

WR#3228582			
Station	**Offset**	**Ref Pt#**	**Proposed Work**
11TR+68 to 11TS+68	43'RT to	190 to 200	Directional boring new high voltage 500kcmil cable in duct
11TS+68	28'LT	200	Splice pit
11TS+68 to 14TS+59.5	28'LT to 25.5'LT	200 to 210	Directional boring new high voltage 500kcmil cable
14TS+59.5	25.5'LT	210	Splice pit
14TS+59.5 to	25.5'LT to	210 to 220	Directional boring new high voltage 500kcmil cable
18TS+03.5	25'LT	220	Splice pit
18TS+03.5 to 18TS+03.5	25'LT to 36.5'RT	220 to 230	Directional boring new high voltage 500kcmil cable in duct
18TS+03.5	36.5'RT	230	Splice pit
18TS+03.5 to 21TS+32	36.5'RT to 38'RT	230 to 240	Directional boring new high voltage 500kcmil cable
21TS+32	38'RT	240	Splice pit
21TS+32 to 21TS+32	38'RT to 280'RT	240 to 250	Directional boring new high voltage 500kcmil cable in duct
21TS+32	280'RT	250	New pole with switch and risers
21TS+32 to 20TS+78	280'RT to 280'RT	250 to 255	Removing four overhead conductors
20TS+78	280'RT	255	Reframing exisitng pole #06-08143

WR#3228578			
Station	**Offset**	**Ref Pt#**	**Proposed Work**
17WX+25 TIE-IN	38'LT	100	Splicing three phase 500al cable to existing
17WX+25 TIE-IN to 17WX+25	38'LT to 54'LT	100 to 110	Trenching/ hydro. Vacing new three phase 500al cable
17WX+25 to 14WX+73	54'LT	110 to 120	Directional boring new three phase 500al cable
14WX+73	54'LT	120	Splicing three phase cable/ bore pit
14WX+73 to 10WX+96/604SN+83	54'LT/96'RT	120 to 130	Directional boring new three phase 500al cable
10WX+96/604SN+83	54'LT/96'RT	130	Splicing three phase cable/ bore pit
604SN+83 to 605SN	96'RT to 77.5'RT	130 to 140	Trenching new three phase 500al cable
605SN to 607SN+89	77.5'RT	140 to 150	Directional boring new three phase 500al cable

WR#3228578			
Station	**Offset**	**Ref Pt#**	**Proposed Work**
607SN+89 to 608SN+50	77.5'RT to 83.5'RT	140 to 150	Directional boring new three phase 500al cable
608SN+50 to 609SN	83.5'RT to 88.5'RT	140 to 150	Directional boring new three phase 500al cable
609SN to 609SN+50	88.5'RT	140 to 150	Directional boring new three phase 500al cable
609SN+50	88.5'RT	150	Locating pedestal
609SN+50 to 611SN	88.5'RT	150 to 160	Directional boring new three phase 500al cable
611SN to 612SN+27	88.5'RT	150 to 160	Directional boring new three phase 500al cable 6.5' deep
612SN+27 to 613SN+30/11R+2.5	88.5'RT to 101.5'RT/122'RT	150 to 160	Directional boring new three phase 500al cable 6.5' deep
613SN+30/11R+2.5	122'RT	160	Splicing three phase cable/ bore pit
11R+2.5 to 12R	122'RT	160 to 170	Directional boring new three phase 500al cable
12R to 12R TIE- IN	122'RT to 98'RT	170 to 180	Trenching new three phase 500al cable
12R TIE-IN	98'RT	180	Splicing three phase 500al cable to existing
17WX+25 to 10WX+21	38’LT to 49LT		Abandon cable
10WX+21 to 613SN+32	49’LT to 57 RT		Abandon cable
613SN+32 to 12R+00	57’RT to 98’RT		Abandon cable

WR#3228577			
NEW 500 CABLE:			
Station	**Offset**	**Ref Pt#**	**Proposed Work**
46P+70.89	24.5' RT	100	Installing new riser on existing
46P+70.89 to 46P+64	24.5'RT to 32'LT	100 to 110	Directional boring new 500cu in duct
46P+64 to 47P+00	32'LT to 32'LT	110 toward 120	Directional boring new 500al
47P+00 to 47P+50	32'LT to 34'LT	110 toward 120	Directional boring new 500al
47P+50 to 48P+00	34'LT to 37'LT	110 toward 120	Directional boring new 500al
48P+00 to 48P+50	37'LT to 40.5'LT	110 toward 120	Directional boring new 500al

WR#3228577			
NEW 500 CABLE:			
Station	**Offset**	**Ref Pt#**	**Proposed Work**
48P+50 to 49P+00	40.5'LT to 40.5'LT	110 toward 120	Directional boring new 500al
49P+00 to 49P+18.82	40.5'LT to 46.32'LT	110 toward 120	Directional boring new 500al
49P+18.82	46.32'LT	120	Bore pit/splicing cable
49P+18.82 to 614SN+94.37	46.32'LT to 99'LT	120 toward 130	Directional boring new 500al
614SN+94.37 to 615SN+44	99'LT to 99'LT	120 toward 130	Directional boring new 500al
615SN+44	99'LT	130	Bore pit/splicing cable
615SN+44 to 11R+88	99'LT to 90'LT	130 to 140	Directional bore new 500cu in duct
11R+88	90’LT	140	Bore pit/splicing cable
11R+88	90’LT to 52’LT	140 to 150	Directional boring new 500al
11R+88	52’LT	150	Bore pit/splicing in new cable to existing
46P+71 to 11R+88	24.5’ RT to 52’LT	100 to 150	Abandon cable

NEW POLE:			
Station	**Offset**	**Ref Pt#**	**Proposed Work**
47P+57.5	24.5'LT	170	New pole

NEW SECONDARY:			
Station	**Offset**	**Ref Pt#**	**Proposed Work**
47P+57.5 to 48P+00	24.5'LT to 32'LT	170 toward 180	Directional boring 350txr
48P+00 to 48P+50	32'LT to 35.5'LT	170 toward 180	Directional boring 350txr
48P+50 to 49P+00	35.5'LT to 39.72'LT	170 toward 180	Directional boring 350txr
49P+00 to 49P+24.86	39.72'LT to 41.81'LT	170 toward 180	Directional boring 350txr
49P+24.86	41.81'LT	180	Existing dot meter ped

WR#3204883			
Station	**Offset**	**Ref Pt#**	**Proposed Work**
16WEB+98	110.5'LT	100	Riser to new pole
16WEB+98 to 17WEB+80	110.5'LT to 150'LT	100 to 110	New 500kcmil high voltage cable bored from pole to vfi
17WEB+80	150'LT	110	New vfi
17WEB+80 to 19WEB+03	150'LT to 182'LT	110 to 120 to 130	New 3-#1al distribution cable bored
19WEB+03	182'LT	130	New transformer
17WEB+80 to 18WEB+26	150'LT to 92'LT	110 to 140	New 3-#1al distribution cable
18WEB+26	92'LT	140	Splice point
18WEB+26 to 19WEB	92'LT to 89'LT	140 to 150	New 3-#1al distribution cable bored in duct
19WEB	89'LT	150	Splice point
19WEB to 20WEB+46	89'LT to 98'LT	150 to 160	New 3-#1al distribution cable
20WEB+46	98'LT	160	New transformer
20WEB+46 to 20WEB+49	98'LT to 98'LT	160 to 170	New 350txr cable from transformer to pedestal
20WEB+49	98'LT	170	New pedestal
20WEB+49 to 31WEB+06	98' LT to 62'LT	170 to 180	New 3/0txr cable from pedestal to exisitng d.o.t meter
31WEB+06	62'LT	180	Exisitng d.o.t meter pedestal
17WEB+80 to 18WEB+26	150'LT to 87'LT	110 to 190	New 500kcmil cable bored
18WBE+26	87'LT	190	Splice point
18WEB+26 to 19WEB+03	87'LT to 85'LT	190 to 200	New 500cu cable bored in
19WEB+03	85'LT	200	Splice point
19WEB+03 to 20WEB+90	85'LT to 81.5'LT	200 to 210	New 500kcmil high voltage cable bored
20WEB+90	81.5' LT	210	Splice point
20WEB+90	81.5'LT to 55.5'RT	210 to 220	New 500cu high voltage cable bored in duct
20WEB+90	55.5'RT	220	Splice point
20WEB+90 to 19WEB+56.5	55.5'RT to 68.5' RT	220 to 230	New 500kcmil high voltage cable bored
19WEB+56.5	68.5'RT	230	New vfi
19WEB+56.5 to 19WEB+40	68.5'RT to 69.5'RT	230 to 240	New 3-#1al distribution cable
19WEB+40	69.5'RT	240	Splice point
19WEB+56.5 to 629SN+61	68.5'RT to 128.5'LT	230 to 260	New 500kcmil high voltage cable bored
629SN+61	118.5'LT	260	Splice point see wr3228575

REMOVALS/ABANDONMENT			
Station	**Offset**	**Ref Pt#**	**Proposed Work**
16WEB+47 to 17WEB+64.5	101'LT to 110.5'LT	105 to 113	Abandon 3-#2al distribution cable
17WEB+64.5	110.5'LT	113	Remove switch fuse unit
17WEB+64.5 to 19WEB+03	110.5'LT to 182'LT	113 to 135	Abandon 3-#2al distribution cable
19WEB+03	182'LT	135	Remove transformer
31WEB+06 to 20WEB+80	62'LT to 35.5'RT	180 to 225	Abandon 1/0txr service lateral to d.o.t meter ped
19WEB+40 to 18WEB+07	69.5'RT to 49'RT	240 to 245	Abandon 3-#1al distribution cable

WR# 3228575			
Station	**Offset**	**Ref Pt#**	**Proposed Work**
629SN+61	118.5'LT	100	Splice
629SN+61 to 23WEB+79	118.5'LT to 113'RT	100 to 110	New high voltage 500cu cable bored in duct
23WEB+79	113'RT	110	Splice
23WEB+79 to 24WEB+89	113'RT to 118'RT	110 to 120	New high voltage 500kcmil cable bored
24WEB+89	118'RT	120	New vfi
24WEB+89 to 24WEB+54	118'RT to 120'RT	120 to 130	New 1-#1al distribution cable
24WEB+54	120'RT	130	New transformer
24WEB+54 to 24WEB+54	120'RT to 47'RT	130 to 140	New 1-#1al distribution cable
24WEB+54	47'RT	140	Splicing in new #1al cable to existing #1al cable
24WEB+54 to 23WEB+90	120'RT to 120'RT	130 to 160	New 350txr secondary cable
23WEB+90	120'RT	160	New pedestal
23WEB+90 to 23WEB+19	120'RT to 44'RT	160 to 170	New 350txr secondary cable
23WEB+19	44'RT	170	Splicing in new 350txr to existing 3/0txr service lateral
24WEB+89 to 27WEB+93	118'RT to 113'RT	120 to 180	New high voltage 500kcmil cable bored
27WEB+93	113'RT	180	New vfi
27WEB+93 to 27WEB+93	113'RT to 91'RT	180 to 190	New high voltage 500kcmil cable open cut
27WEB+93	91'RT	190	Splice
27WEB+93 to 27WEB+93	91'RT to 113'LT	190 to 200	New high voltage 500cu cable bored in duct
27WEB+93	113'LT	200	Splice
27WEB+93 to 29WEB+12	113'LT to 120'LT	200 to 210	New high voltage 500kcmil cable bored
29WEB+12	120'LT	210	Splice
29WEB+12 to 30WEB+52	120'LT to 120'LT	210 to 220	New high voltage 500cu cable bored in duct
30WEB+52	120'LT	220	Splice

WR# 3228575			
Station	**Offset**	**Ref Pt#**	**Proposed Work**
30WEB+52 to 31WEB+7.5	120'LT 120'LT	220 to 230	New high voltage 500kcmil cable bored
31WEB+7.5	120' LT	230	New riser. New pole set on overhead order: wr3279591
27WEB+93 to 29WEB+07	113'RT to 185'RT	180 to 240	New high voltage 500kcmil cable bored
29WEB+07	185'RT	240	Splice
27WEB+93 to 29WEB+09	113'RT to 113'RT	180 to 250	New 3--#1al distribution cable bored
29WEB+09	113'RT	250	Splice
29WEB+09 to 30WEB+18	113'RT to 114'RT	250 to 260	New 3--#1al distribution cable bored in duct
30WEB+09	114'RT	260	Splice
30WEB+09 to 32WEB+15	114'RT to 115'RT	260 to 270	New 3--#1al distribution cable bored
32WEB+15	115'RT	270	Splice
32WEB+15 to 32WEB+15	115'RT to 167'RT	270 to 280	New 3--#1al distribution cable bored
32WEB+15	167'RT	280	Splice
32WEB+15 to 163NV+97	167'RT to 120'LT	280 to 290	New 3--#1al distribution cable bored in duct
163NV+97	120'LT	290	New transformer
327163NV+97 to 32WEB+19	120'LT to 166'RT	290 to 300	New 3--#1al distribution cable bored in duct
32WEB+19	166'RT	300	Splice
32WEB+19 to 32WEB+23	166'RT to 131'RT	300 to 310	New 3--#1al distribution cable
32WEB+23	131'RT	310	New transformer
32WEB+23 to 32WEB+23	131'RT to 126'RT	310 to 320	New 500kcmil cable and 350txr secondary cable open
32WEB+23	126'RT	320	New pedestal
32WEB+23 to 32WEB+41.5	126'RT to 59'RT	320 to 330	New 3/0txr service
32WEB+41.5	59'RT	330	Splicing in new 3/0TXR service cable to existing service cable
32WEB+23 to 32WEB+59.5	126'RT to 115'RT	320 to 340	New 3--#1al distribution cable open cut
32WEB+59.5	115'RT	340	Splice
32WEB+59.5 to 34WEB+28	115'RT to 116'RT	340 to 350	New 3--#1al distribution cable bored in duct
34WEB+28	116'RT	350	Splice
34WEB+28 to 35WEB+95	116'RT to 116.5'RT	350 to 360	New 3--#1al distribution cable bored
35WEB+95	116.5'RT	360	Splice
35WEB+95 to 36WEB+83	116.5'RT to 117'RT	360 to 370	New 3--#1al distribution cable bored in duct

WR# 3228575			
Station	**Offset**	**Ref Pt#**	**Proposed Work**
36WEB+83	117'RT	370	Splice
36WEB+83 to 36WEB+83	117'RT to 155'RT	370 to 380	New 1-#1al distribution cable bored
36WEB+83	155'RT	380	Splice
36WEB+83 to 36WEB+83	155'RT to 187'RT	380 to 390	New 1--#1al distribution cable bored in duct
36WEB+83	187'RT	390	Splice
36WEB+83 to 36WEB+83	187'RT to 333'RT	390 to 400	New 1-#1al distribution cable
36WEB+86	333'RT	400	Exisitng transformer
36WEB+86 to 36WEB+86	333'RT to 187'RT	400 to 410	New 1--#1al distribution cable bored in duct
36WEB+86	187'RT	410	Splice
36WEB+86 to 36WEB+86	187'RT to 155'RT	410 to 420	New 1--#1al distribution cable bored in duct
36WEB+86	155'RT	420	Splice
36WEB+86 to 36WEB+86	155'RT to 117'RT	420 to 430	New 1-#1al distribution cable bored
38WEB+64 to 38WEB+64	117'RT	430	Splice
36WEB+83 to 36WEB+86	117'RT to 117'RT	370 to 430	New 2-#1al distribution cable bored
36WEB+86 to 38WEB+61	117'RT to 71.5'RT	430 to 440	New 3--#1al distribution cable bored
38WEB+61	71.5'RT	440	Splice
38WEB+61 to 38WEB+61	71.5'RT to 152'LT	440 to 450	New 3--#1al distribution cable bored in duct
38WEB+61	152'LT	450	Splice
38WEB+61 to 38WEB+83	152'LT to 151'LT	450 to 460	New 3--#1al distribution cable open cut
38WEB+83	151'LT	460	Splice
38WEB+83.5	230'LT	470	Exisitng transformer
38WEB+83.5 to 38WEB+64	230'LT to 147'LT	470 to 480	New 1-#1al distribution cable bored
38WEB+64	147'LT	480	Splice

REMOVALS/ABANDONMENT:			
Station	**Offset**	**Ref Pt#**	**Proposed Work**
23WEB+99.5 to 626SN+86	63'RT to 130'RT	155 to 600	Abandon 3-#1al distribution cable
23WEB+23 to 23WEB+56	45'RT to 65.5'RT	165 to 175	Abandon 3/0txr service cable
31WEB+08 to 38WEB+83	73'RT to 151'LT	235 to 460	Abandon 3-#1al distribution cable
28WEB+45 to 29WEB+07	45'RT to 185'RT	255 to 240	Abandon 3-500al high voltage cable
31WEB+08 to 32WEB+49	43'RT to 59'RT	265 to 335	Abandon #2al distribtion cable
32WEB+49	59'RT	335	Remove transformer
32WEB+49 to 38WEB+87	59'RT to 47'RT	335 to 510	Abandon #2al distribution cable
31WEB+74 to 163NV+97	54.5'RT to 120'LT	275 to 295	Abandon 3-#1al distribution cable
163NV+97	120'LT	295	Remove transformer
163NV+97 to 36WEB+86	120'LT to 333'RT	295 to 400	Abandon 1-#1al distribution cable

WR#3279591			
Station	**Offset**	**Ref Pt#**	**Proposed Work**
16WEB+47	101'LT	100	Reframing pole#: 83-04296
16WEB+47 to 16WEB+98	101'LT to 110.5'LT	100 to 110	Installing new overhead wires
16WEB+98	110.5'LT	110	Setting new pole
19WEB+98	70'LT	105	Removing guy pole (no tag number)
16WEB+59	39.5'RT	115	Remove tap framing
16WEB+59 to 31WEB+74	39.5'RT to 54.5'RT	115 to 235	Removing overhead wires
17WEB+79.5	36'RT	125	Removing pole#: 81-10179
17WEB+79.5 to 18WEB+09	36'RT to 49'RT	125 to 127	Removing overhead wires
18WEB+09	49'RT	127	Removing pole#: 98-08349
20WEB+5.5	34'RT	135	Removing pole#: 76-0070
20WEB+80	35.5'RT	145	Removing transformer and pole#: 65-1731
23WEB+23	44'RT	155	Removing pole#: 60-6629
23WEB+99	46.5'RT	165	Removing pole#: 07-05476
23WEB+99 to WEB+99.5	46.5'RT to 63'RT	165 to 315	Removing overhead wires
23WEB+99.5	63'RT	315	Removing pole#: 07-05477
24WEB+52	47'RT	175	Removing pole#: 07-05487
25WEB+84	45'RT	185	Removing pole#: 60-6628

WR#3279591			
Station	**Offset**	**Ref Pt#**	**Proposed Work**
28WEB+45	45'RT	195	Removing pole#: 60-6627
29WEB+15	44.5'RT	205	Removing pole#: 06-08082
30WEB+83.5	43.5'RT	215	Removing pole#: 00-01832
31WEB+08	43.5'RT	225	Removing pole#: 51-0024
31WEB+74	54.5'RT	235	Removing pole#: 96-01200
31WEB+08	73'RT	245	Removing pole#: 04-13271
31WEB+07.5	120'LT	240	Setting new pole and two guys 15' long and 20’ long
31WEB+06	223'LT	255	Removing cross arm framing for "x" feeder line
31WEB+06	511'LT	265	Removing cross arm framing for "x" feeder line
31WEB+06	648'LT	275	Removing cross arm framing for "x" feeder line
31WEB+06	760'LT	285	Removing cross arm framing for "x" feeder line
31WEB+14	905'LT	295	Removing pole#: 00-01831
31WEB+14 to 32WEB+84	905'LT to 883'LT	295 to 310	Abandoning 3-#2al distribution cable
32WEB+84	883'LT	310	Splicing
32WEB+ 85	864'LT	300	Setting new pole with step down transformers
32WEB+85 to 32WEB+84	864'LT to 883'LT	300 to 310	Installing 3-#1al direct bury distribution cable
30WEB+83.5 to 31WEB+06	43.5'RT to 223'LT	215 to 255	Removing overhead wires
31WEB+08 to 31WEB+08	43.5'RT to 73'RT	225 to 245	Removing overhead wires
31WEB+06 to 31WEB+14	223'LT to 905'LT	255 to 295	Removing "x" feeder overhead wires
31WEB+08 to 31WEB+74	43.5'RT to 54.5'RT	225 to 235	Removing overhead wires
31WEB+08 to 31WEB+07.5	73'RT to 120'LT	245 to 240	Removing overhead wires

WR#3279593			
Station	**Offset**	**Ref Pt#**	**Proposed Work**
15WEB+26 to 17WEB+06	13’RT to 13’RT	103 to 105	Abandon conduit
17WEB+06	13’RT	105	Abandon manhole
17WEB+06 to 20WEB+14	13’RT to 8.5’RT		Abandon conduit
633SN+98' to 639SN+49	105'LT to 54'LT	109 to 111	Abandon conduit
639SN+49	54'LT	111	Abandon manhole
639SN+49 to 640SN+57	54'LT to 53'LT	111 to 113	Abandon conduit
639SN+49 to 639SN+55	54'LT to 40'RT	111 to 115	Abandon conduit
639SN+55	40'RT	115	Abandon manhole
639SN+55 to 640SN+56	40'RT to 41RT	115 to 117	Abandon conduit
637SN+60	80’LT		Pole 89-07609 and anchor to remain. Contractor will have to use caution when grading around anchor

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

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

- Underground gas lines along the STH 100 throughout the project limits. We Energies will relocate portions of these facilities as necessary prior to construction.
- Underground gas lines along Bluemound Road throughout the project limits. We Energies will relocate portions of these facilities as necessary prior to construction.
- An underground gas line beginning beyond the easterly project limits and running westerly along the north side of Wisconsin Avenue, crossing STH 100 at Station 604SS+08, and continuing west to beyond the westerly project limits. We Energies will relocate portions of this line as necessary prior to construction.
- An underground gas line along West Potter Road throughout the project limits. We Energies will relocate portions of this line as necessary prior to construction.
- An underground gas line along Research Drive throughout the project limits. We Energies will relocate portions of this line as necessary prior to construction.
- Underground gas lines along Watertown Plank Road throughout the project limits. We Energies will relocate portions of these facilities as necessary prior to construction.
- An underground gas line along Innovation Drive throughout the project limits. We Energies will relocate portions of this line as necessary prior to construction.

Contact Matt Kiracofe, (414) 944-5791 office / (414) 640-0671 cell, of We Energies 7 days in advance to coordinate locations and any excavation near their facilities.

We Energies – Steam has an underground steam line beginning beyond the westerly project limits of Innovation Drive and running easterly to a manhole at Station 163NV+00, 27' LT where it turns and runs southeasterly, crossing Innovation Drive at Station 162NV+61, to a building at Station 161NV+76, 53' RT. We Energies will remove the top 1/3 of this structure and pour a new roof. We energies will do this work prior to construction.

Contact Jay Maudlin, (414) 221-2303 office, of We Energies 7 days in advance to coordinate locations and any excavation near their facilities.

WisDOT – Lighting has existing lighting facilities along STH 100 and Bluemound Road throughout the project limits. Adjust, abandon, remove, leave in place, and reconstruct the lighting facilities as shown in the plans.

Contact Matt Pfeifer, (414) 266-1154, of WisDOT - Lighting 7 days in advance to coordinate locations and any excavation near their facilities.

WisDOT – Signals has existing signal facilities at the intersections of IH 94 westbound on ramp/STH 100, Bluemound Road/STH 100, Potter Road/STH 100, and Watertown Plank Road/STH 100. Adjust, abandon, remove, leave in place, and reconstruct the signal facilities as shown in the plans.

Contact WisDOT Traffic Signal Operations, (414) 750-2605, 7 days in advance to coordinate locations and any excavation near their facilities.

WisDOT STOC has existing underground communication facilities running north-south in STH 100 throughout the project limits. Adjust, abandon, remove, leave in place, and reconstruct the communication facilities as shown in the plans.

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

Railroad Fiber Optic Lines
Union Pacific Railroad Company Fiber Optic Lines
Call "Diggers Hotline" and additionally contact the Union Pacific Railroad Company "call before you dig" office at 1-800-336-9193. Normal business hours are 7:00 AM to 9:00 PM, Central Time, Monday through Friday, except holidays. Reference Milwaukee, Wisconsin, Mile Post 90.36 on the Milwaukee Subdivision to verify the location of fiber optic lines located on railroad right-of-way at the construction site. Calls will be routed at all times in case of an emergency.
107-065 (20080501)

9. Other Contracts.

A Description

Coordinate your work in accordance to standard spec 105.5.

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

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

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

Contract ID 1060-33-77, Greenfield Avenue Bridge reconstruction from S. 101st Street to S. 97th Street. The WisDOT contact is Jason Lynch at (414) 750-0538; jason.lynch@dot.wi.gov.

Contract ID 1060-33-71, Glenview Avenue reconstruction from W. Bluemound Road to W. Wisconsin Avenue. The WisDOT contact is Joshua LeVeque at (262) 548-8797; joshua.leveque@dot.wi.gov.

Contract ID 1060-33-73, Swan Boulevard construction from W. Watertown Plank Road to USH 45. The WisDOT contact is Jeff Bohen at (414) 750-2928; jeff.bohen@dot.wi.gov.

Contract ID 1060-33-72, Watertown Plank Road Interchange reconstruction from Wisconsin Avenue to Underwood Parkway. The WisDOT contact is Jeff Bohen at (414) 750-2928; jeff.bohen@dot.wi.gov.

Contract ID 1060-33-75, UPRR and STH 100 Bridge reconstruction over IH 94 and the Hank Aaron State Trail. The WisDOT contact is Joshua LeVeque at (262) 548-8797; joshua.leveque@dot.wi.gov.

10. Railroad Insurance and Coordination.

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: John Venice
Manager of Special Projects – Industry and Public Projects,
Engineering Department
Union Pacific Railroad Company
101 North Wacker Drive, Suite 1920
Chicago, IL 60606
Telephone: (312) 777-2043
Fax: (402) 233-2769
email jnvenice@up.com

Include the following information on the insurance document:
Project – 1060-33-70
Route Name – STH 100, Milwaukee County
Crossing ID – 177 258H
Railroad Subdivision – Milwaukee
Railroad Milepost 90.36

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.

- The railroad will install inside guardrail safety protection on all track rails that are within 25 feet horizontally of a tunnel wall or retaining wall.
- The railroad will install (and remove) two grade crossings for construction equipment usage at the locations indicated on the plans, north and south of the existing tunnel and proposed tunnel extensions.
- The railroad will install two separate locks on two contractor gates, which will be removed after the construction crossing is no longer in service.

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

Contact the following for consultation on railroad requirements during construction:

John Venice
Manager of Special Projects – Industry and Public Projects,
Engineering Department
Union Pacific Railroad Company
101 North Wacker Drive, Suite 1920
Chicago, IL 60606
Telephone: (312) 777-2043
Fax: (402) 233-2769
email jnvenice@up.com

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

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

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

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

A.6 Temporary Clearances During Construction
Replace subparagraphs (3) 4.1 and (3) 4.2 of standard spec 107.17.1 with the following:

Provide 12 feet 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:

- Cranes swinging or handling materials or equipment within 25 feet of the centerline of any track.
- Construction operations that are in proximity of power lines or railroad signal and communication lines, underground cables, fuel oil facilities or pipe lines and which might result in fire or damage to such facilities, danger to railroad operations or danger to the public in the transaction of business on railroad premises.

- Excavation, tunneling, blasting, pile driving, placing, or removing cofferdams or sheeting, or similar activities might cause the railroad's tracks or buildings to be undermined, heaved out of normal level, shifted out of alignment, or otherwise impaired.
- Bridge painting activities including rigging of falsework, scaffolding or similar activities within 25 feet of the centerline of any track.
- Deck removal activities within 25 feet of the centerline of any track.
- Pouring of bridge decks in spans over an operated track.
- At any other time in railroad representative's judgment, the contractor's work or operations constitute an intrusion into the track zone and create an extraordinary hazard to railroad traffic, and at any other time when flagging protection is necessary for safety to comply with the operating rules of the railroad.

Projects with concurrent activity may require more than one flagger. A flagger is required for each open access gate to each temporary crossing. If the contractor's means and methods dictate that both crossings will be in use at the same time, two separate flaggers will be required, one at each crossing.

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 5 business days before starting work near a track. Provide the specific time planned to start the operations.

C.2 Rates – Union Pacific

The following rates, reimbursement provisions, and excluded conditions will be used to determine the contractor's cost of flagging (if per diem is necessary, as determined by the Manager of Industry and Public Projects (MIPP), add $57 per day):

$526 daily rate for an eight-hour day (including wages, labor surcharges, lodging, vehicle and mileage expenses),

$1054 “Rest Time” or nightly rate for weekday overnight work for an eight-hour day (including wages, labor surcharges, lodging, vehicle and mileage expenses)

$760 daily rate for an eight-hour day on Saturdays, Sundays, or holidays (including wages, labor surcharges, lodging, vehicle and mileage expenses)

$1540 “Rest Time” or nightly rate for weekend overnight work for an eight-hour day (including wages, labor surcharges, lodging, vehicle and mileage expenses)

$88 per hour overtime rate for all time worked before or after the regular assigned eight hours on any day, or for a minimum three hour call on Saturdays, Sundays, or Holidays.

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

C.3 Reimbursement Provisions

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

C.4 Excluded Conditions

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

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

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

C.5 Payment for Flagging

Railroads may issue progressive bills. Notify the railroad when the work is completed and request a final bill from the railroad. The railroad will issue a final bill. Promptly pay railroad-flagging bills, less any charges that may be in dispute. The department will pay for flagging reimbursement under the Railroad Flagging Reimbursement 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.

11. Union Pacific Railroad Company Requirements.

A General

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

B Request for Information / Clarification

All requests for information (RFI) involving work within UPRR right-of-way shall be in accordance to the procedures listed elsewhere in the special provisions. Submit all RFIs to the engineer for submittal to UPRR. Allow four weeks for UPRR's review after receipt from the engineer.

C Plans / Specifications

Changes to the plans or specifications are subject to the approval of UPRR. Submit all change requests to the engineer. Allow four weeks for UPRR review time after receipt of a change request from the engineer.

D Construction Submittals

Submit six sets of the following to the engineer. All design submittals shall be stamped and signed by a professional engineer registered in the State of Wisconsin. The engineer will submit four sets of each submittal, along with any review comments to UPRR. A satisfactory submittal review does not relieve the contractor of responsibility and liability. The engineer and UPRR may review the submittals. If the engineer or UPRR finds a submittal unsatisfactory, make all required changes and resubmit it. A satisfactory submittal review does not relieve the contractor of responsibility and liability of complying with the plans, specifications and the special provisions and for the structural integrity and proper functioning of the item that is the subject of the submittal. Allow four weeks for UPRR's review time after receipt of a submittal from the engineer.

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

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

E Infringement On Minimum Clearances
Submit to the engineer requests for infringement upon the minimum horizontal or vertical clearance requirements of standard spec 107.17.1 (3) 4. The engineer will submit the requests to UPRR's designated representative. Allow four weeks for UPRR's review time after receipt of a submittal from the engineer. Do not infringe upon the minimum clearances unless they are first approved in writing by UPRR.

F Approval of Details
Submit details of construction affecting UPRR tracks, structure, and right-of-way not included in the plans to the engineer for UPRR review before undertaking such work. Allow four weeks for UPRR's review after receipt from the engineer.

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

- Shoring
- Demolition
- Falsework
- Erection of superstructure
- Completion of the bridge structure.

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

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

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

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

12. 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 Zack Pilichowski at 262-548-6458.
107-054 (20080901)

13. Erosion Control.

Supplement standard spec 107.20 with the following:

Provide the Erosion Control Implementation Plan (ECIP) 14 days prior to the pre-construction conference. Pursue operations in a timely and diligent manner, continuing all construction operations methodically from the initial removals and topsoil stripping operations through the subsequent grading, paving, and re-topsoiling to minimize the period of exposure to possible erosion.

Topsoil graded areas, as designated by the engineer, immediately after grading has been completed within those areas. Seed and mulch, or sod, and fertilize all topsoiled areas within 5 calendar days after placement of topsoil.

Furnish and apply water to sodded areas. After staking and cleanup, moisten the sod thoroughly by sprinkling with water. Keep all sodded areas thoroughly moist by watering or sprinkling if rainfall is not sufficient to achieve sod rooting to the earth bed. Water for 30 days after placement, or as the engineer directs. Apply water in a manner to preclude washing or erosion.

Do not pump water from the construction site to a storm water conveyance without the water first passing through a sediment trap.

Construct temporary sediment traps at locations that do not interfere with construction operations.

Replace standard spec 107.20(3) with the following:

Prepare and submit an Erosion Control Implementation Plan (ECIP) for the project, including borrow sites and material disposal sites, in accordance to Chapter TRANS 401 requirements. The ECIP shall supplement information shown on the plans and shall not reproduce it. The erosion control implementation plan shall identify how the contractor intends to implement the project's erosion control plan. The erosion control plan shall include details for the methods of debris containment devices required, particularly during the removal of the old bridges and construction of the new structures.

14. Hauling Restrictions.

Hauling will not be permitted on W. Potter Road, W. Research Drive, and W. Innovation Drive.

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

This provision does not reduce or eliminate the contractor responsibility from restoring local roads under the item maintenance and repair of haul roads.

15. 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, unless prior written approval is obtained from the engineer.

Noise levels between the night-time hours of 9:00 PM to 7:00 AM shall be restricted as follows including the use of pneumatic hammers and pavement removal, unless compliance is waived by the engineer:

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

Prior to waiving the noise compliance by the engineer, provide 48 hour advance notice to Mr. William Wehrley, City Engineer, at (414) 479-8929 regarding the evening noise generating construction operations.

16. Available Documents.

The department desires to make all its information available to bidding contractors. The list of documents that are available for contractors' information includes but is not limited to:

Design Study Report
Exceptions to Standards Report
Interstate Access Justification Report
Pavement Type Selection Report
Preliminary Plans
Environmental Impact Statement
As-Built Drawings

These documents are available from William Mohr, PE at 141 NW Barstow Street, Waukesha, WI 53187. He may be reached at (262) 548-5666.

The contractor shall be responsible for reproduction costs of any copies requested.

17. 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 William Mohr, 141 NW Barstow Street, Waukesha, WI 53187, (262) 548-5666.

- Highway 100 Pavement Design Parameters – Zoo Interchange Corridor Study, ID #1060-33-09, dated September 16, 2011.
- Highway 100 Pavement Excavation Below Subgrade Recommendations – Zoo Interchange Corridor Study, ID#1060-33-09, dated November 16, 2011.
- Watertown Plank Road Excavation Below Subgrade Recommendations – Zoo Interchange Corridor Study, ID#1060-33-09, dated November 16, 2011.
- Watertown Plank Road Pavement Design Parameters – Zoo Interchange Corridor Study, ID# 1060-33-09, dated September 16, 2011.

- Preliminary Geotechnical Exploration and Tunnel Foundation Evaluation, ID 1060-33-70 (B-40-433, dated September 16, 2011).
- Preliminary Geotechnical Exploration and Retaining Wall Evaluation, ID 1060-33-09 (R-40-475, dated August 31, 2011).
- Preliminary Geotechnical Exploration and Retaining Wall Evaluation, ID 1060-33-01 (R-40-476, dated October 21, 2011).
- Geotechnical Exploration and Retaining Wall Evaluation, ID#1060-33-70 (R-40-477, dated February 6, 2012).

Additional geotechnical information is available from studies and analyses that have been performed by Forward 45 (F45) for the Wisconsin Department of Transportation (WisDOT) for other aspects of this project. The contractors are responsible to review the available information to determine if it is of use to the contractors. The use or not of the geotechnical information does not relieve the contractor from performing the work in accordance to the plans and specifications.

18. Contract Award and Execution.

Supplement standard spec 103 as follows:

103.9 Bid Escrow Documentation

The department will require the three lowest responsible bidders 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.

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

The BED shall include, but not be limited to, all quantity takeoffs, rate schedules for the direct costs of craft labor, construction (expendable materials), construction equipment ownership costs, construction equipment operating costs, permanent materials subcontractors and insurance. Also include development of rates of production including, where appropriate: estimate of crews, construction materials, construction equipment, and construction sequence and duration. Submit the BED for each subcontractor whose total subcontract costs exceed $500,000.

Identify the allocation of construction plant and equipment, time and non-time related indirect costs (including if applicable joint venture fees), home office overhead, contingencies and margin applicable to each bid item. Further, documentation shall include consultant's reports, final estimate adjustment calculations, and all other information used by bidders to arrive at the estimate.

Any manuals standard to the industry used by the bidder in determining the proposal are also considered part of the BED. These manuals may be included in the proposal documentation by reference and shall show the name and date of the publication and the publisher.

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

The three low bidders shall present authentic copies of their respective BED at the department's office, located at 2424 S. 102nd Street, West Allis, WI 53227 on Thursday, January 10, 2013 at 9:30 AM.

At the time of submittal, only designated representatives of the apparent low bidder and the department will jointly examine the apparent low bidder's bid documentation to determine if it is authentic, legible, and generally meets the requirements of this special provision. The department will not share the BED information with, or in any other way divulge the contents of the apparent low bidder's BED to, their subcontractors or any other party.

The department, if requested by apparent low-bidder subcontractors, will also independently examine the BED submitted by the apparent low bidder's subcontractors in the same manner as the apparent low bidder's BED was examined. Only designated representatives of the individual subcontractor and the department will be present during this examination. The department will not share the BED information with, or in any other way divulge the contents of a subcontractor's BED to, the apparent low bidder or any other party.

The department's examination of the BED will not include review of, nor will it constitute approval of, proposed construction methods, estimating assumptions, or interpretation of the contract. The examination will not alter any conditions or terms of the contract. The department will determine if the BED complies with this special provision within 4 hours after the time the BED is submitted. If the BED does not meet the requirements of this special provision, the department may reject the bid.

If the BED of the apparent low bidder meets the requirements of this special provision, the department and bidder will jointly deposit the BED at an agreed document storage facility. Place the BED in a sealed envelope or container clearly marked with the bidder's name and address, date of submittal, project name and identification number. Representatives of the department and the bidder will deliver all bid escrow

documentation and the original affidavit directly to a document storage facility, to be placed in escrow. The BED of the second and third low bidders will be deposited unopened along with the resealed BED of the low bidder.

If the apparent low bid is withdrawn or rejected, the designated representative will examine and inventory the bid documentation of the second low bidder and their subcontractors in the manner specified above, then seal and deposit again in escrow. If the second low bidder is withdrawn or rejected, the designated representative will examine and inventory the bid documentation of the third low bidder and their subcontractors in the manner specified above, then seal and deposit again 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. Upon final execution and final approval of the contract or rejection of all bids, the department will return all bid documentation to any remaining unsuccessful bidders.

The department will pay for the costs of the escrow document storage facility and will provide escrow instructions to the document facility consistent with this special provision.

The department acknowledges that the bidder considers that the BED constitutes trade secrets or proprietary information. This acknowledgment is based upon department's understanding that the information contained in the BED is not known outside each bidder's business, is known only to a limited extent and by a limited number of employees of bidder, is safeguarded while in bidder's possession, and may be valuable to bidder's construction strategies, assumptions and intended means, methods and techniques of design and construction. Except as set forth in the contract or as required by applicable Law, the department acknowledges that the BED will remain in the possession of the Escrow Agent at all times and will at no time be received by, or become the property of, the department.

Submit a copy of the affidavit below, signed under oath before a Notary Public by a representative of the bidder authorized to execute proposals. department representatives will sign the affidavit after reviewing the BED.

The BED will remain in escrow until:

1. The bidder and the department mutually agree to release of the BED;
2. A court orders the department to provide the BED;
3. A dispute is referred to the Dispute Review Board or claims review panel; or
4. Either party seeks judicial review of a dispute.

If any of the events numbered 1-4 above occurs, the department will take possession of all relevant portions of the BED, as determined by the department, until complete resolution of the issue for which the request was made or the court order was issued. In absence of such actions, and provided the bidder signs an appropriate release, the unopened BED will be released to the bidder upon final acceptance and the expiration of all warranty periods provided by this contract.

BID ESCROW DOCUMENTATION CERTIFICATION

Using this BID ESCROW DOCUMENTATION CERTIFICATION, the bidder certifies that the material submitted below constitutes all the documentary information used in preparation of the bid and that said bidder has fully examined the contents of the container and that they are complete. The undersigned Wisconsin Department of Transportation representatives have reviewed the BED for compliance.

BIDDER

_____
(Name of Bidder)

By: _____
(Signature*)

Title _____

Date _____

WITNESS

_____
(Name of Witness)

By: _____
(Signature*)

Date: _____

WISCONSIN DOT

_____
(Name of department Representative)

By: _____
(Signature*)

Title _____

Date _____

WISCONSIN DOT

_____
(Name of department Representative)

By: _____
(Signature*)

Title: _____

Date: _____

(END OF BID ESCROW DOCUMENTS)

103.10 Mobilization Workshops

103.10.1 Workshop Schedule

After contract award, attend the following workshops. Each workshop is described below and will include but not be limited to the following topics. The workshop dates will be scheduled after contract award.

Workshop Schedule

1. Project Kickoff and Initial Work Plan
2. Cost Reduction Incentives
3. Utility Coordination
4. Submittals
5 CPM Progress Schedule
6. RR Coordination/Tunnel Construction/Waterproofing
7. Storm Water Management/Pond and Storm Sewer Construction
8. Partnering (Initial Session)
9. Notice to Proceed

If necessary, the engineer may modify the workshop schedule to ensure attendance by the necessary department and contractor personnel; however, all workshops will be completed prior to issuing the Notice to Proceed.

103.10.2 Workshops

103.10.2.1 Project Kickoff and Initial Work Plan

103.10.2.1.1 General

The Project Kickoff and Initial Work Plan Workshop will provide a forum to discuss and answer questions relative to the proposal, bid schedule, and other questions in the Project Questionnaire described in standard spec 103.10.2.1.2. The Initial Work Plan Workshop will include:

1. Contractor responses to the attached Project Questionnaire.
2. Department presentation of the use of CPM scheduling on the project and presentation of the department's Master Schedule to the contractor.
3. Contractor presentation of its conceptual work plan for the project.
4. Department and contractor discussion of the level of detail and features in the Initial Work Plan and the Baseline CPM Progress Schedule.

103.10.2.1.2 Project Questionnaire

Provide the following information in the order shown below. This information will constitute the "Project Questionnaire."

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

1. Provide the following information about the company:
   - Firm Name
   - Address
   - Telephone and facsimile numbers; e-mail address
   - Contracting Specialties
   - Years performing work in contracting specialties
   - Geographic areas served
   - Total Management Employees and years of service
   - Project Managers
   - General Superintendents
   - Craft Superintendents
   - Engineers
   - Estimators
   - CPM Schedulers

Construction Engineering

- Provide/attach a copy of your Construction Project Manager's resume indicating the manager's experience in similar major construction projects. The resume shall include similar projects with references. (Note: references are only for verification of work scope performed).
- Provide (if applicable) your third-party construction engineering firms.
- Provide plan for Construction surveying

Subcontractors

- Attach the list of all subcontractors that are intended for this Project and the items of work they shall perform.

Permanent Material Suppliers

- Attach the list of all permanent material suppliers that are intended for the project.

Quality Control

- 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/or Table of Contents of your Construction Quality Management Program.

- Provide the name of your Independent Quality Control Testing firm (Construction Quality Control Lab) and qualifications indicating the firm's experience in similar major construction projects. The resume shall include similar projects with references. (Note: references are only for verification of work scope performed).

Organization Chart

- Provide a functional and personnel Organization Chart showing the authority and responsibilities of each individual identified.

Work Rules

- Provide the plan for hours per day, days per week, and number of shifts for key elements of work; i.e. sewer tunnels, retaining wall construction, roadway excavation, bridge structures, and roadway structural section activities.

Maintenance of Traffic

- Provide the name of your Traffic Control Manager and qualifications indicating the firm's experience in similar major construction projects. The resume shall include similar projects with references. (Note: references are only for verification of work scope performed).
- Include an outline of your approach to the Maintenance of Traffic and how you shall stage the construction to meet the substantial completion schedule.
- 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:
- Retaining wall construction by type of work
- Bridge demolition
- Roadway structural section
- Roadway excavation
- Office and yard facilities

103.10.2.2 Cost Reduction Incentives

The Cost Reduction workshop will identify value enhancing opportunities and consider modifications to the plans and specifications that will reduce either the total cost, time of construction or traffic congestion, without impairing, in any manner, the essential functions or characteristics of the project, including, but not limited to, service life, economy of operation, ease of maintenance, benefits to the traveling public, desired appearance, or design and safety standards.

The contractor may submit recommendations resulting from the workshop for approval by the engineer as cost reduction incentive proposals in conformance with the provisions in standard spec 104.10 "Cost Reduction Incentive."

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

The contractor may submit CRIs after the CRI workshop that were not introduced at the CRI workshop.

103.10.2.3 Utility Coordination

The Utility Coordination Workshop will define the scope and schedule of utility relocation work and the respective rules and responsibilities of the project team.

1. At a minimum, the following key personnel will attend the Utility Coordination Meeting.
   - 1.1 Department's Utility Coordinator.
   - 1.2 Contractor's Utility Coordinator.
   - 1.3 Designer Team's Utility Coordinator.
   - 1.4 Key Utility Company Representative(s)

2. At a minimum, the Utility Coordination Meeting will include a review of the following:
   - 2.1 Summary of all required utility relocations on the project.
   - 2.2 Special provisions addressing utility work.
   - 2.3 Sharing of contact information.
   - 2.4 Scheduling of work for utility relocation including critical milestones and staging for the work.

103.10.2.4 Submittals

The Submittal Workshop will identify the key required submittals for the project, categorize submittals into functional areas, and develop a schedule for submittals and submittal reviews. The Workshop participants will at a minimum:

1. Review the project special provisions.

2. Categorize submittals into functional areas including but not limited to:
   - 2.1 MSE Retaining Walls
   - 2.2 Temporary Shoring
   - 2.3 Falsework and Formwork
   - 2.4 Girder Shop Drawings
   - 2.5 Steel Transportation, Delivery and Erection
   - 2.6 Structure Demolition Plans
   - 2.7 Pile Hammers and High Capacity Piling
   - 2.8 Concrete/ Asphalt
   - 2.9 Materials
   - 2.10 ITS / Lighting
   - 2.11 Traffic Signals
   - 2.12 Sanitary Sewer and Water
   - 2.13 Permits

3. Develop a schedule for submittals.

19. Public Information Meetings.

Participate in department-sponsored public information meetings as the engineer requests. Ensure that representatives of subcontractors also participate in those meetings if the engineer requests.

20. Contractor Notification.

Replace standard spec 104.2.2.2(2) with the following:

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

Replace standard spec 104.3.2 and 104.3.3 with the following:

104.3.2 (Vacant)

104.3.3 Contractor Initial Written Notice

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.

The contractor is encouraged to 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.

21. Contractor Document Submittals.

A Description

This special provision describes minimum contractor requirements for submitting project documents to the department. This special provision does not apply to shop drawing submittals.

B Contractor Submittals

Provide two paper originals and one electronic copy of all documents requiring department review, acceptance, or approval. Attach a completed engineer-provided transmittal sheet to each paper original and email submittal. The department will reject submittals with incomplete transmittal sheets and require re-submittal.

The department will return one reviewed, accepted, or approved paper original to the contractor. The contractor may request additional return originals. Submit an additional original for each additional return original requested.

Submit electronic copies in Adobe Acrobat (.pdf) format via email to an account the engineer determines. If possible, translate original documents from their native format (e.g. Word, Excel, AutoCAD, etc.) using an Adobe Acrobat translation routine. Scan other documents to Adobe Acrobat format with a minimum resolution of 600 dpi.

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

22. Claims Process for Unresolved Changes.

Replace standard spec 105.13.5, 105.13.6, and 105.13.7 with the following:

105.13.5 Review by the Department

The department will conduct an initial review phase and a decision phase to resolve the claim. At any point in these two phases, the department may waive its review and request a dispute review board (DRB).

In the initial review phase the contractor and the department will have up to 30 calendar days from the contractor's submission of the claim for the contractor to submit all additional information required and for the department to review the claim and conduct all meetings. The department may request, in writing, that the contractor submit additional information related to the claim. The contractor shall submit that additional information or notify the department, in writing, to base its decision on the information previously submitted. Either party may request a meeting to present its views. Before the meeting the department will distribute written ground rules for the meeting to both parties.

The contractor and the department can mutually agree to extend the 30-day review period. Upon completion of the review phase the department will notify the contractor, in writing, that it has begun the decision phase.

In the decision phase the department will have up to 30 calendar days to issue a written decision. The department will consider both parties' written and oral submissions and may consider other relevant information in the project records. The department and contractor can mutually agree to extend the 30-day decision period. The department will provide the following in its decision:

- A concise description of the claim.
- A clear contractual basis for its decision that includes a reference to standard spec 104.2 on revisions to the contract and as appropriate, specific reference to language regarding the bid items in question.
- Other facts the department relies on to support its decision.

- A concise statement of the circumstances surrounding the claim and reasons for its decision. If the department rejects the claim in whole or in part the department will explain why the claimed work is not a change to the contract work.
- The amount of money or other relief, if any, the department will grant the contractor.

In the appeal phase the contractor shall have up to 21 calendar days from the date of the department's decision to request a dispute review board hearing. If the contractor does not file a written request as specified in standard spec 105.13.6.1.2 within the 21 calendar days, the department's decision is final. If the department does not render a decision within the period allowed by standard spec 105.13.5, the contractor may request a dispute review board hearing.

105.13.6 Dispute Resolution

105.13.6.1 Dispute Review Board (DRB)

The purpose of a DRB is to resolve claims in a manner that complies with the contract, is impartial, and expedites the standard claims process. The DRB will do so by issuing recommendations that may be binding or non-binding depending on the claim amount.

105.13.6.1.1 Selection of Members and Agreement for Services

The department and the contractor will cooperatively establish the DRB promptly after contract execution. Each DRB will consist of one member appointed by the department and approved by the contractor, one member appointed by the contractor and approved by the department, and a third member appointed by the first two members and approved by both. The third member will act as DRB chairperson.

If a DRB member is unable to perform the duties of the office, the department may declare the office vacant. The new DRB member will be selected in the same manner as the original member. If the vacancy occurs after the hearings begin the remaining DRB members may continue with the hearing and determination of that claim, unless the department and contractor agree otherwise.

After approval of the DRB members, the department, contractor, and the DRB members will enter into a three-party agreement that sets forth the terms and conditions that apply to services provided by the DRB including procedures for standard operation of the DRB, use of the DRB in an advisory role, periodic site visits, and any other pertinent terms. The department, contractor, and all three DRB members will execute the DRB agreement within 14 calendar days after the selection of the chairperson. Payment for the DRB shall be in accordance to standard spec 105.13.7.

105.13.6.1.2 Pre-Hearing Submissions

If the contractor intends to appeal the department's decision, the contractor shall prepare a written statement of position setting forth in detail the nature of, and factual and legal basis for the claim and all remedies sought from the DRB. The statement shall also include and identify all claims on behalf of subcontractors. Submit the statement of position with the

request for a DRB hearing within the 21 calendar day appeal phase as specified in 105.13.5.

Within 14 calendar days (or a period mutually agreed by the department and contractor) of receipt of the contractor's written statement of position, the department will provide the DRB and the contractor its response to the contractor's written statement. The response will set forth the position of the department and any counterclaims the department has relating to the claim, including a detailed statement setting forth each factual and legal defense to the claim and all documentation that establishes each defense.

105.13.6.1.3 Preparation of Claim File

The department will prepare a claim file within 14 calendar days of either the contractor or the department requesting a DRB hearing. The department will include all previous documents and evidence submitted during the department review and decision phases. The department may add additional documents but not additional analysis or conclusions. The claim file may contain, but is not limited to the following:

- Contractor's notices and statements.
- Engineer's written statements.
- Engineer's decisions.
- Supplemental information from the contractor during the department claim review.
- Project photos.
- Meeting minutes, correspondence, and other documents related to the claim.
- Complete set of plans and specifications.
- Applicable shop drawings and submittals.
- The department's decision.
- Contractor request for a DRB hearing.

After the department has assembled the claim file it will provide a copy to the contractor. The contractor shall have 7 calendar days to add additional documentation as specified above, to the claim file. The contractor shall return a complete copy of the claim file, including any additional documentation added by contractor, to the department.

105.13.6.1.4 DRB Claim Review

The department will provide a copy of the completed claim file to each board member for review. If the DRB requests additional information the appropriate party will provide the information to the DRB. The DRB may also visit the site to become familiar with the project and claim.

105.13.6.1.5 Scheduling and Conduct of Hearing

The DRB will set a date and location for a hearing no earlier than 30 calendar days but no later than 60 calendar days after the receipt of a written request for a DRB hearing.

The department and the contractor will have representatives at all hearings. The contractor shall first present its position, followed by the department. Each party will be allowed one

rebuttal. The DRB members, department, and the contractor may ask questions, request clarification, or ask for additional data. Unless extended by agreement between the department and the contractor, the DRB will limit a hearing to two eight-hour days. Each party will have eight hours to present both its position and rebuttal.

Normally, the DRB will not prepare a formal transcript of the presentations. When requested be either party, the DRB may allow recordation and transcription by a court reporter with the cost allocated as agreed by both parties. This transcript will not constitute the official record of the DRB review. The record prepared by the DRB is the official record of the hearings.

105.13.6.1.6 Claims by the Subcontractor

If the contractor's claim includes one or more subcontractor claims, the contractor shall ensure that an authorized representative with actual knowledge of the facts underlying the subcontractor claim assists in presenting the subcontractor's claim and answering questions raised by the DRB members or the department's representatives.

105.13.6.1.7 Findings and Recommendations

After all DRB hearings are concluded the DRB will formulate findings and recommendations. The DRB will conduct private and confidential deliberations and attempt to reach a unanimous decision. The DRB will base its findings and recommendations on the terms of the contract documents, established principles of law, statutes and regulations, the facts and circumstances of the claim, and the information provided by the parties.

Within 30 calendar days of the hearings the DRB will issue its final findings and recommendations. Claims resulting in a decision involving $250,000 or less will be binding on the parties to the extent permitted by Wisconsin law. For claims resulting in a decision involving more than $250,000, if accepted by the parties, the department will process the DRB decision for approval and will promptly process any required contract changes.

If the DRB is unable to reach unanimity in its findings and recommendations, both parties will be advised by the DRB report. At their discretion, a dissenting member may prepare a minority report to be included in the DRB.

105.13.6.1.8 Further Action on Decisions Exceeding $250,000

Each party will have 45 calendar days from receipt of a final decision of the DRB exceeding $250,000 to accept or reject, in writing, the decision. If either party fails to accept or reject, in writing, that final decision of the DRB within 45 calendar days of receipt of such decision, the DRB will notify the parties that non-response is considered to be acceptance of that decision and further administrative or judicial review will be barred. Provide notice of acceptance or rejection of the final decision to the DRB in a manner and form prescribed by the DRB. The DRB will reject any notice on a final decision not filed by either party in a timely manner. This 45-day appeal period may be extended if agreed to in writing prior to the 45-day expiration period.

105.13.6.1.9 Advisory Dispute Review Board
As an alternative to the standard DRB process, the department may elect to use the DRB in an advisory role to expedite the resolution of a dispute or claim. The DRB may review and hear disputes or claim issues during a regularly scheduled site visit. The DRB will offer its advice either during or promptly after the site visit.

105.13.7 Payment for DRB
The contractor shall be responsible for paying all labor and expenses for the DRB member appointed by the contractor.

The department shall be responsible for paying all labor and expenses for the DRB member appointed by the department.

The department and contractor shall share equally in the labor and expenses for the DRB chairperson. The chairperson shall submit all costs for his/her labor and expenses to the contractor for payment. The contractor shall invoice the department for 50 percent of those costs.

23. Information to Bidders, Use of Recovered Material.

The department encourages the use of waste materials and recovered industrial byproducts (eg. foundry sand used as trench backfill) as material substitutions (standard spec 106.2.1), provided they meet standard specification gradation requirements, conform to NR 538 requirements, and/or follow standard engineering practice for their intended use.

24. Information to Bidders Wetlands.

The department has obtained a U.S. Army Corps of Engineers Section 404 Permit and Wisconsin DNR 401 Water Quality Certification for work being performed on this project in or adjacent to wetlands. Copy(s) of the permit and certification letter are available for viewing at the Region office or at the project field office.

Comply with the requirements of the permit and certification in addition to requirements of the contract. Perform remedial activities without extra compensation if not in compliance.

25. Payment Tracking.

A Reporting Payments During Construction
Comply with reporting requirements specified in the department's civil rights and labor compliance management system manual.

Contractor shall report payments to all first tier relationships including subcontractors, suppliers, and trucking 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 subcontractors, suppliers, and trucking firms. Report the payment as

specified in A(1) for all work satisfactorily performed and for all materials furnished or stockpiled.

Require all first tier relationships including subcontractors, suppliers, and trucking firms in receipt of a progress payment by contractor to acknowledge receipt of payment as specified in A(1) and (2).

All agreements made by a contractor shall include the provisions in A(1) and (3), and shall be binding on all first tier relationships including subcontractors, suppliers, and trucking firms on the project.

B (Vacant)

C (Vacant)

D (Vacant)

E Payment
Costs for conforming to this special provision are incidental to the contract.

26. Labor Compliance Reporting – Payroll Requirements.

Submit weekly certified payrolls verifying prevailing wage rates for all work performed under the contract as directed in the civil rights and labor compliance management system manual. Submit weekly certified payrolls within seven calendar days of the week covered by the weekly certified payroll.

27. Nighttime Work Lighting-Stationary.

A Description
Provide portable lighting as necessary to complete nighttime work. Nighttime operations consist of work specifically scheduled to occur after sunset and before sunrise.

B (Vacant)

C Construction
C.1 General
This provision shall apply when providing, maintaining, moving, and removing portable light towers and equipment-mounted lighting fixtures for nighttime stationary work operations, for the duration of nighttime work on the contract.

At least 14 days prior to the nighttime work, furnish a lighting plan to the engineer for review and acceptance. Address the following in the plan:

1. Layout, including location of portable lighting – lateral placement, height, and spacing. Clearly show on the layout the location of all lights necessary for every aspect of work to be done at night.

2. Specifications, brochures, and technical data of all lighting equipment to be used.

3. The details on how the luminaires will be attached.

4. Electrical power source information.

5. Details on the louvers, shields, or methods to be employed to reduce glare.

6. Lighting calculations. Provide illumination with average to minimum uniformity ratio of 5:1 or less throughout the work area.

7. Detail information on any other auxiliary equipment.

C.2 Portable Lighting

Provide portable lighting that is sturdy and free standing and does not require any guy wires, braces, or any other attachments. Furnish portable lighting capable of being moved as necessary to keep up with the construction project. Position the portable lighting and trailers to minimize the risk of being impacted by traffic on the roadway or by construction traffic or equipment. Provide lightning protection for the portable lighting. Portable lighting shall withstand up to 60 mph wind velocity.

If portable generators are used as a power source, furnish adequate power to operate all required lighting equipment without any interruption during the nighttime work. Provide wiring that is weatherproof and installed according to local, state, federal (NECA and OSHA) requirements. Equip all power sources with a ground-fault circuit interrupter to prevent electrical shock.

C.3 Light Level and Uniformity

Position (spacing and mounting height) the luminaires to provide illumination with an average to minimum uniformity ratio of 5:1 or less throughout the work area.

Illuminate the area as necessary to incorporate construction vehicles, equipment, and personnel activities.

C.4 Glare Control

Design, install, and operate all lighting supplied under these specifications to minimize or avoid glare that interferes with all traffic on the roadway or that causes annoyance or discomfort for properties adjoining the roadway. Locate, aim, and adjust the luminaires to provide the adequate level of illumination and the specified uniformity in the work area without the creation of objectionable glare.

Provide louvers, shields, or visors, as needed, to reduce any objectionable levels of glare. As a minimum, ensure the following requirements are met to avoid objectionable glare on the roadways open to traffic in either direction or for adjoining properties:

1. Aim tower-mounted luminaires, either parallel or perpendicular to the roadway, so as to minimize light aimed toward approaching traffic.

2. Aim all luminaires such that the center of beam axis is no greater than 60 degrees above vertical (straight down).

If lighting does not meet above-mentioned criteria, adjust the lighting within 24 hours.

C.5 Continuous Operation
Provide and have available sufficient fuel, spare lamps, generators, and qualified personnel to ensure that the lights will operate continuously during nighttime operation. In the event of any failure of the lighting system, discontinue the operation until the adequate level of illumination is restored. Move and remove lighting as necessary.

D (Vacant)

E Payment
Costs for furnishing a lighting plan, and for providing, maintaining, moving, and removing portable lighting, tower mounted lighting, and equipment-mounted lighting required under this special provision are incidental to the contract.
643-010 (20100709)

28. Dust Control Implementation Plan.

A Description
Develop, update, and implement a detailed Dust Control Implementation Plan (DCIP) for all land-disturbing construction activities and associated impacts both within the project site boundaries and outside the project site boundaries. This article also specifies contract bid items the contractor shall incorporate into their DCIP.

B (Vacant)

C Construction
C.1 General
The contractor is responsible for dust control on the project as specified in standard spec 107.18. Minimize dust emissions resulting from land disturbing activities. Do not generate excessive air borne particulate matter (PM) or nuisance dust conditions. The contractor has direct responsibility for controlling dust at all times throughout the duration of the contract, 24 hours per day, 7 days per week, including non-working hours, weekends, and holidays.

Submit a DCIP to the engineer for review at least 14 calendar days before the preconstruction conference. Coordinate with the department, if requested, to resolve DCIP related issues before the preconstruction conference. The department will either approve the DCIP or request revisions. Do not initiate any land-disturbing activities without the department's approval of the DCIP.

C.2 Dust Control Implementation Plan Contents

Develop a DCIP tailored to the specific needs of the project. Consider potential impacts to businesses and residences adjacent to the job site. Describe in detail all land disturbing, dust generating activities. Identify strategies to prevent, mitigate, and collect excess dust. Establish clear lines of communication with the engineer to ensure that all dust control issues can be dealt with promptly.

The DCIP shall include, but not be limited to, all of the following:

1. A single contact person with overall responsibility for the DCIP development as well as surveillance and remediation of job related dust. Include the following:
    - Name, firm, address, and working-hours phone number.
    - Non-working-hours phone number.
    - Email address.
2. Individual contact persons and their respective areas of responsibility. Include the following:
    - Name, firm, address, and working-hours phone number.
    - Non-working-hours phone number.
    - Email address.
3. A site map locating project features, the job site boundaries, all ingress and egress points, air intakes and other dust-sensitive areas, and all public and private paved surfaces within and immediately adjacent to the job site. Show where specific land disturbing, dust generating activities will occur and, to the extent possible, where the contractor plans to employ various dust control or prevention strategies.
4. A matrix showing, for each anticipated land disturbing, dust generating activity, the following:
    - Preventive measures that will be employed.
    - The applicable contact person.
    - The contractor's timetable and/or surveillance measures used to determine when remediation is required.
    - The specific dust control and remediation measures that will be employed. List the specific contract bid items that will be used for payment. Also indicate costs that are incidental to the contract.
    - Both maintenance and cleanup schedules and procedures.
    - How excess and waste materials will be disposed of.
5. A description of how off-site impacts will be monitored and dealt with.

C.3 Updating the Dust Control Implementation Plan

Update the DCIP throughout the term of the contract as the engineer directs. Obtain the engineer's approval for all DCIP alterations. Also obtain the engineer's approval for DCIP routine adjustments for weather, job conditions, or emergencies that will have an impact on payment under the bid items listed in the approved DCIP.

C.4 Dust Control Deficiencies

Correct engineer identified dust control deficiencies within the time the engineer specifies. The engineer will allow from 30 minutes to 24 hours from the time the engineer notifies the contractor in writing of the deficiency. Deficiencies include, but are not limited to, actions or lack of actions resulting in excessive dust, failing to comply with the contractor's dust control implementation plan or associated special provisions, and failing to properly maintain equipment.

D Measurement

The department will measure the various bid items associated with dust control as specified in the applicable measurement subsections of either the standard specifications or other contract special provisions. The department will not measure work performed under a DCIP alteration unless the engineer specifically approves that alteration.

Measurement under the DCIP shall include, but is not limited to, the contract bid items listed below:

623.0200	Dust Control Surface Treatment
624.0100	Water
628.7560	Tracking Pads
SPV.0105.0011	Pavement Cleanup Project 1060-33-70

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.

29. Project Site Air Quality.

Because fine particulate matter levels for Milwaukee County 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.

The department encourages the contractor to voluntarily establish staging zones for trucks waiting to load and unload. 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 the contractor 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.

Potable Concrete Crusher Plants
Portable concrete crusher plants may need a NR 440 Concrete Crusher Plant Air Permit for air emissions. Please contact Mike Griffin, Wisconsin Department of Natural Resources, Air Compliance Engineer at (414) 263-8554 to request additional information and permit application materials. Complete permit applications may take 3 months to process.

30. Owner Controlled Insurance Program.

Owner section 107.26, "Standard Insurance Requirements" of the standard specifications is deleted in its entirety and the following section 107.26 is substituted thereof:

107.26 Standard Insurance Requirements
107.26(1)(a) Owner Controlled Insurance Program

1. **Overview**. The State of Wisconsin, Department of Transportation ("the WisDOT") has arranged with Aon Risk Solutions, (the "OCIP administrator") for this Project to be insured under its Owner Controlled Insurance Program ("OCIP"). The OCIP is more fully described in the Zoo Interchange manual for the Owner Controlled Insurance Program (the "Insurance Manual") and the Safety and Health Plan Manual that are incorporated in this Special Provision and the Contract by this reference. Parties performing labor or services at the Project Site (as defined by the OCIP Policies) are eligible to enroll in the OCIP unless the party is an excluded party (as defined below). The OCIP will provide to enrolled parties(as defined below) workers' compensation and employer's liability insurance, commercial general liability insurance, Builders Risk and Excess Liability insurance as summarily described below in connection with the performance of the Work ("OCIP coverage's").

2. **Enrolled Parties and Their Insurance Obligations.** OCIP coverage applies only to Enrolled Parties. Enrolled Parties include the WisDOT and its employees, non-excluded Contractors and Subcontractors of all tiers who enroll in the OCIP, all employees of Enrolled Contractor's and Subcontractor's who perform Work at the Project Site, and such other persons or entities that the WisDOT, in its sole discretion, may designate (each such party who is insured under the OCIP is collectively referred to as an "Enrolled Party").

   Enrolled Parties shall obtain and maintain, and shall require each of its Subcontractors to obtain and maintain, the insurance coverage specified in 107.26(1)(a) 8 below.

3. **Excluded Parties and Their Insurance Obligations.** OCIP coverage's do not apply to the following "Excluded Parties":

a. Hazardous materials remediation, removal and/or transport companies;

b. Vendors *, suppliers, fabricators, material dealers, truckers**, haulers, drivers and others who merely transport, pickup, deliver, or carry materials, personnel, parts or equipment or any other items or persons to or from the Project;

* WisDOT is requiring all vendors who perform maintenance on an enrolled contractor's equipment to be enrolled in the OCIP. Please see "WisDOT OCIP Enrollment Guidance Relating to Service Vendors" to determine whether they will be enrolled per project id number or on a Miscellaneous blanket basis.

** Truckers that come on site must remain in the cab of the vehicle.

Refer to the "Enrollment Matrix" which clearly outlines the requirements contingent upon the category that the entity falls under, such as: Contractor; Subcontractor; Consultant; Visitor; etc.

c. Sanitary disposal facility providers, if the only function is to drop off the units and pick them up later, they are material suppliers and are excluded. If the company also services/cleans the units on site, that is no longer being a material supplier. (Refer to "Enrollment Matrix", Vendors Providing Maintenance On Site).

d. Contractors and Subcontractors of any tier that do not perform any actual labor on the Project site;

e. Any party or entity not specifically identified in this special provision or excluded by the WisDOT as permitted by law, even if otherwise eligible.

f. If you are not employed by an Enrolled Party, but performing services of an Excluded Party, you are not covered by the OCIP.

Excluded Parties and parties not enrolled in the OCIP shall obtain and maintain, and shall require each of its excluded Subcontractors to obtain and maintain, the insurance coverage specified in Section 107.26(1)(a) 8 below and in the Insurance Manual. Excluded Parties shall comply with all of the safety requirements pursuant to 107.26(1)(a) 16.

4. **OCIP Insurance Policies Establish OCIP coverage's**. The OCIP coverage's and exclusions summarized in this special provision and the other contract documents are set forth in full in their respective insurance policy forms. The summary descriptions of the OCIP coverage's in this special provision or the Insurance Manual are not intended to be complete or to alter or amend any provision of the actual OCIP coverage's. In the event any provision of this special provision, the Insurance Manual, or the contract documents, conflicts with the OCIP insurance policies, the provisions of the actual OCIP insurance policies shall govern.

5. **Summary of OCIP Coverage's**. OCIP coverage's will apply only to those operations of each Enrolled Party performed at the Project Site (as defined in the OCIP insurance Policies) in connection with the Work and only to Enrolled Parties that are eligible for the OCIP.

The OCIP coverage's are primary insurance for all Enrolled Parties for occurrences during the policy period at the Project Site (as defined in the OCIP Policies). The OCIP will provide at least the following insurance to Enrolled Parties:

Summary of OCIP Coverages

This is a brief description of OCIP Insurance Coverage. Enrolled Parties should refer to the actual policies for details concerning coverage, exclusions and limitations.

a. Workers' Compensation Insurance - Statutory Limit including Jones Act and USL&H coverage, as applicable.

b. Employer's Liability Insurance

   $1,000,000 Bodily Injury by Accident, each accident

   $1,000,000 Bodily Injury by Disease, each employee

   $1,000,000 Bodily Injury by Disease, policy limits

c. Commercial General Liability (ISO Occurrence Form – Limits Shared By All Insureds)

   $2,000,000 Each Occurrence Limit (Annual Limit)

   $2,000,000 Personal/Advertising Injury Aggregate

   $4,000,000 General Aggregate Limit for all Enrolled Parties (Annual Limit)

   $4,000,000 Products & Completed Operations Aggregate for all Enrolled Parties (Single Limit Applies to Entire Products & Completed Operations Extension)

   10 yr. Products & Completed Operations Extension

d. The OCIP Commercial General Liability policy will not provide coverage for any claim that could be covered under a property policy or Builder's Risk policy.

e. Excess Liability insurance (over Employer's Liability & General Liability – Limits Shared by All Insureds)

   $100,000,000 Each Occurrence Limit

   $100,000,000 Aggregate (Annual Limit)

   $100,000,000 Products & Completed Operations Aggregate Limit (Single Limit Applies to Entire Products & Completed Operations Extension).

f. Builder's Risk Insurance Coverage:

This is a brief description of Builder's Risk Insurance Coverage. Contractor should refer to the actual policies for details concerning coverage, exclusions and limitations.

The Builder's Risk insurance covers insures property, including materials, supplies, machinery, fixtures and equipment which will become a permanent part of the Work (excluding road work at grade level) in the course of construction.

The Builder's Risk coverage insures WisDOT and Enrolled Parties.

Builders Risk:

	Limit
Each Occurrence Limit	$100,000,000

Builder's Risk Obligation:

Contractor or Subcontractor shall pay to the WisDOT's designee within five (5) days written notice a maximum of up to **twenty-five thousand dollars ($25,000.00)** for each loss payable under the Builder's Risk Policy attributable to Contractor's Work, acts or omissions, or the Work, acts or omissions of any of Contractor's Subcontractors, or any other entity or party for whom Contractor may be responsible ("builder's risk obligation").

6. The WisDOT's Insurance Obligations.

a. The WisDOT will pay the costs of premiums for the OCIP coverage's and WisDOT will receive or pay, as the case may be, all adjustments to such costs, whether by way of dividends, retroactive adjustments, return premiums, other moneys due, audits or otherwise.

b. The WisDOT assumes no obligation to provide insurance other than that specified in this special provision and the OCIP insurance policies.

c. Except as provided by applicable law. the WisDOT's furnishing of OCIP coverage's will in no way relieve or limit, or be construed to relieve or limit, Contractor or any of its Subcontractors of any responsibility, liability, or obligation imposed by the contract documents, the OCIP insurance policies, or by law, including without limitation any indemnification obligations which Contractor or any of its Subcontractors has to the WisDOT there under. The WisDOT reserves the right at its option, to furnish other insurance coverage of various types and limits provided that such coverage is not less than that specified in the contract documents.

7. Contractor's OCIP Obligations. Contractor shall:

a. Assign to WisDOT the right to receive all such adjustments, and shall require that each of its Subcontractors of every tier assigns to WisDOT the right to receive all such adjustments.

b. Incorporate the terms of this special provision in all subcontract agreements.

c. Enroll and maintain enrollment in the OCIP, and shall ensure that each non-Excluded subcontractor, enrolls and maintains enrollment in the OCIP. Enrollment shall take place within five (5) days of a receipt of a Notice to Proceed, and prior to commencement of work. d. Comply with all of the administrative, safety, insurance, and other requirements outlined in this special provision, the Insurance Manual, the OCIP insurance policies, the Safety and Health Plan Manual, or elsewhere in the contract documents.

d. Provide each of its Subcontractors with a copy of the Insurance Manual and ensure Subcontractor compliance with the provisions of the OCIP insurance policies, the Insurance Manual, this special provision, and the contract documents. The failure of (a) the WisDOT to include the Insurance Manual in the bid documents or (b) Contractor to provide each of its eligible Subcontractors with a copy of same shall not relieve Contractor or any of its Subcontractors from any of the obligations contained therein.

e. Acknowledge, and require all of its Subcontractors to acknowledge in writing, that the WisDOT and the OCIP administrator are not agents, partners or guarantors of the insurance companies providing coverage under the OCIP (each such insurer, an "OCIP insurer") and that the WisDOT is not responsible for any claims or disputes between or among Contractor, its Subcontractors, and any OCIP insurer(s). Any type of insurance coverage or limits of liability in addition to the OCIP coverage's that Contractor or any Subcontractor requires for its or their own protection, or that is required by applicable laws or regulations, shall be Contractor's or its Subcontractor's sole responsibility and expense and shall not be billed to the WisDOT.

f. Cooperate fully with the OCIP administrator and the OCIP insurers, as applicable, in its or their administration of the OCIP.

g. Provide, within five (5) business days of the WisDOT's or the OCIP administrator's request, all documents or information as requested of Contractor or its Subcontractors. Such information may include but not be limited to, payroll records, certified copies of insurance coverage's, declaration pages of coverage's, certificates of insurance, underwriting data, prior loss history information, insurance audits, safety records or history, OSHA citations, or such other data or information as the WisDOT, the OCIP administrator, or OCIP insurers may request in the administration of the OCIP, or as required by the Insurance Manual.

h. Pay to the WisDOT's designee within five (5) days of written notification, a sum of up to **$10,000** of each claim, including court costs, attorneys fees and costs of defense for property damage to the extent losses are insured under the OCIP Commercial General Liability policy for those losses that are attributable to Contractor's Work, acts or omissions, or the Work, acts or omissions of any of its Subcontractors, or any other entity or party for whom Contractor may be responsible ("contractor General Liability obligation"). The contractor General Liability obligation will not be insured by the OCIP Coverage's.

8. Additional Insurance Required From Enrolled Parties and Excluded Parties. Contractor shall obtain and maintain, and shall require each of its Subcontractors of every tier to obtain and maintain, the insurance coverage specified in this Section in a form and from insurance companies reasonably acceptable to the WisDOT. The insurance limits may be provided through a combination of primary and excess policies, including the umbrella form of policy. The insurance required by this Section shall conform to the WisDOT's requirements outlined in the Insurance Manual and be written by companies authorized to do business in the state of Wisconsin with an **A.M. Best rating of A- or better**. Contractor shall provide certificates of insurance coverage to the WisDOT as required below and by the Insurance Manual.

As to Enrolled Parties, the Workers' Compensation, Employer's Liability, and Commercial General Liability insurance required by this section shall only be for operations away from the Project Site (as defined by OCIP Policies) . The cost of providing the required insurance coverage and limits is incidental to the contract. The department will make no additional or special payment for providing insurance.

TYPE OF INSURANCE MINIMUM LIMITS REQUIRED

1. Commercial General Liability insurance shall be endorsed to include Blanket Contractual Liability coverage.
   a. $2,000,000 Combined Single Limits per occurrence with an annual aggregate limit of not less than $4,000,000.
   b. The OCIP Coverage's shall exclude blasting or explosion operations. If blasting or explosion operations are used in connection with the Work, Commercial General Liability insurance shall not contain an exclusion for blasting or explosion and shall be provided in limits established by the WisDOT at the time such blasting or explosion methods are elected. Such coverage shall apply to operations whether the operations occur on the Project site or away from the Project site.
   c. Wisconsin Department of Transportation, their respective officers, agents and employees, and any additional entities as the WisDOT may request as additional insureds must be named as an Additional Insured which shall include: i) liability arising out of the Work performed by the named insured; ii) liability arising out of the supervision of the Work performed by or operations of the named insured; and iii) liability of the acts or omissions of the Additional Insureds relating to Work performed by the named insured for the Project, except for sole negligence of the Additional Insureds iv) will state that coverage is afforded on a primary and non-contributory basis.
   d. Ongoing Construction Operation(s) in effect at all times while work is being performed by Contractor;
   e. Subcontractors and Independent Contractors (if any);

f. Products and Completed Operations, including coverage applicable to additional insureds (as required by this agreement) with Completed Operations coverage to remain in force, whether by endorsement or renewal of coverage, including the Contractor, any party required to be indemnified by this Contract and any other party required by this Contract to be named as an additional insured, for at least two (2) years from the date of final completion of the Project and WisDOT's acceptance of the work; and

g. Explosion, collapse, and underground hazards.

h. Contractual Liability (insured contract) coverage sufficient to meet the requirements of this Contract (including defense costs and attorney's fees assumed under contract);

i. Personal and Advertising Injury Liability coverage (with the standard contractual and employee exclusions deleted);

j. Notice and Knowledge of Occurrence conditions limited to the knowledge of relevant corporate officers or risk managers with an Unintentional Errors and Omissions provision (providing that the insurer may not deny coverage unless it can show that it has been prejudiced by a failure of the insured to comply with a condition of the policy); and

k. CG 22 79 07 98 (or equivalent) is the only acceptable Professional Liability Exclusion.

l. Operations performed within 50' of railroad

2. Workers' Compensation and Employer's Liability insurance.

   a. Workers' Compensation Limits: Statutory Limits

   b. Employer's Liability limits:

      $1,000,000 Bodily Injury by Accident, each accident

      $1,000,000 Bodily Injury by Disease, each employee

      $1,000,000 Bodily Injury by Disease, policy limits

      Terms and conditions shall include:

      - USL&H – where applicable.
      - Jones Act – where applicable.
      - All states endorsement - where applicable.

3. Commercial Automobile Liability insurance as specified by Insurance Services Office (ISO), form CA 00 01, symbol 1 (any auto) with the following limits and endorsements:

   a. No Trucking or Hauling: $1,000,000 Each Accident

   b. Trucking or Hauling (Non Hazardous Materials): $2,000,000 Each Accident

   c. Trucking or Hauling Hazardous Materials: $5,000,000 Each Accident with an MCS 90 Endorsement and ISO Endorsement CA 99 48.

4. For any work over water, whether deemed navigable or otherwise, Contractors Pollution Liability insurance with $2,000,000 per occurrence and $2,000,000 aggregate policy limits.
5. Aviation and/or Watercraft Liability insurance, as appropriate, including hull and protection and indemnity for watercraft, or other insurance, in form and with limits of liability and from an insuring entity reasonably satisfactory to the WisDOT.

Contractor's failure to procure or maintain the insurance required by this Section and to assure all its Subcontractors of every tier maintain the required insurance during the entire term of the contract shall constitute a material breach of this contract under which the WisDOT may immediately suspend or terminate this contract or, at its discretion, procure or renew such insurance to protect the WisDOT's interests and pay any and all premiums in connection therewith, and withhold or recover all monies so paid from the Contractor.

Contractor shall provide the WisDOT with certificates of insurance as evidence that required coverage's for insurance detailed in this section are in force. The bidder shall provide certificates of insurance in their pre-qualification statement as specified in 102.1.

Contractor shall notify the WisDOT at least 60 calendar days before a cancellation or material change in coverage and only obtain coverage from insurance companies licensed to do business in the state that have an A.M. Best rating of A- or better. The cost of providing the required insurance coverage and limits is incidental to the contract. The WisDOT will make no additional or special payment for providing insurance.

The above insurance requirements shall apply with equal force whether the Contractor or a Subcontractor, or anyone directly or indirectly employed by either, performs the work under the Project.

9. Additional Insureds:

All insurance required by this agreement (excluding only workers compensation insurance) shall name WisDOT, all parties required to be indemnified by this Contract and all other parties as reasonably requested by the WisDOT, as additional insureds. All policies (including primary, excess and/or umbrella) must provide that coverage shall be primary and non-contributory to any insurance maintained by the Contractor or the additional insured, all of which shall be stated on the Certificate of Insurance provided by the Contractor. The Additional Insured Endorsement shall be on Form CG 20 10 11/85, or CG 20 33 10/01 plus CG 20 37 10/01, or equivalent, and shall include ongoing and completed operations coverage, which shall not contain any restrictions**.**

IN THE EVENT THAT THE LAW OF THE STATE IN WHICH THE PROJECT IS LOCATED (OR APPLICABLE LAW) LIMITS THE ADDITIONAL INSURED COVERAGE THAT WISDOT MAY REQUIRE FROM THE CONTRACTOR, THEN THE CONTRACTOR SHALL BE REQUIRED TO OBTAIN ADDITIONAL INSURED COVERAGE TO THE FULLEST EXTENT OF COVERAGE AND LIMITS ALLOWED BY APPLICABLE LAW AND THIS CONTRACT SHALL BE READ TO CONFORM TO SUCH LAW.

10. **Contractor Representations and Warranties to the WisDOT.** Contractor represents and warrants to the WisDOT or behalf of itself and its Subcontractors:

    a. That all information it submits to the WisDOT or the OCIP administrator shall be accurate and complete.

    b. That Contractor, on behalf of itself and its Subcontractors, has had the opportunity to read and analyze copies of the OCIP binders and specimen policies that are on file in the WisDOT's office. Any reference or summary in the contract, this special provision, the Insurance Manual, or elsewhere in any other contract document as to amount, nature, type or extent of OCIP coverage's and/or potential applicability to any potential claim or loss is for reference only. Contractor and its Subcontractors have not relied upon said reference but solely upon their own independent review and analysis of the OCIP coverage's in formulating any understanding and/or belief as to amount, nature, type or extent of any OCIP coverage's and/or its potential applicability to any potential claim or loss.

    c. That the costs of OCIP coverage's were not included in Contractor's bid or proposal for the Work, the contract price, and will not be included in any change order, change modification, or any request for payment for the Work or extra work. The "costs of OCIP coverage's" is defined as the dollar amount of premiums, costs and fees the Contractor and its Subcontractors would have paid its insurance carrier to insure the operations and exposures which are being insured under the OCIP.

    d. That Contractor acknowledges that the WisDOT will not pay or compensate Contractor or any Subcontractor, in any manner, for costs of OCIP coverage's or for "insurance costs" except as specifically required to be maintained by Contractor by the terms of this special provision.

11. **Severability of Interests (Cross Liability):**

    All insurance required by this agreement (excluding only workers compensation insurance) shall include a provision or be endorsed to provide that, inasmuch as the policy is written to cover more than one insured, all terms, conditions, insuring agreements and endorsements, with the exception of limits of liability, shall operate in the same manner as if there were a separate policy covering each insured. No cross liability exclusions are permitted and there may not be any restrictions in any policies that limit coverage for a claim brought by an additional insured against a named insured. Also, there shall not be any provision in any insurance policy which

excludes or conditions coverage on the existence of a contract or other agreement requiring insurance.

12. Breach of Insurance Requirements:

The Contractor's failure to obtain and maintain insurance coverages as required by this agreement shall constitute a material breach of the Contract. In such event WisDOT may at its option: (i) terminate the Contractor for default; or (ii) purchase such coverage and backcharge the premium and associated costs to the Contractor; or (iii) at their respective option, WisDOT and/or an additional insured can require the Contractor and/or its Subcontractors to pay for attorney's fees, expenses, damages and liability as a result of any claim or lawsuit to the extent coverage would have been provided to them under the Contractor's insurance but for the Contractor's breach WisDOT has the right to backcharge the Contractor for such sums. Furthermore, to the extent of their respective interest, the Insurers of those entities that were to be included as additional insureds are deemed to be third-party beneficiaries of the insurance procurement obligation.

13. Subcontractor:

Before permitting any Subcontractor to perform work under a subcontract, the Contractor shall require by written contract that the Subcontractor maintain insurance in like form and amounts to that required herein. The Contractor shall be responsible to ensure that each Subcontractor maintains insurance in like form and amounts and shall provide evidence of same if requested. Contractor shall provide copies of its Subcontractor's certificates of insurance coverage to WisDOT or the OCIP Administrator upon request.

14. Notice of Cancellation:

All insurance coverages required by this agreement shall contain a provision that the coverage afforded thereunder cannot be cancelled, non-renewed, allowed to lapse, or have any restricted modifications added unless at least thirty (30) days prior written notice has been given to WisDOT. The Contractor is responsible to provide replacement coverage conforming with the requirements of this agreement in the event of any cancellation, non-renewal or modification of any insurance coverages required by this agreement.

15. Limits of Insurance:

The Contractor's insurance coverage and any additional insured coverage provided to WisDOT and any additional insured shall be for the full amount of any loss up to the policy(s) limits of liability and shall not be limited to the minimum insurance requirements of this Contract. The Contractor is responsible for notifying its insurance carriers in the event of a loss or potential loss involving coverage for the additional insureds. However, this does not prohibit any additional insureds from reporting a claim directly to the Contractor's insurance carriers.

16. Deductibles/Denial of Claims:

The Contractor shall be responsible, at no additional cost to WisDOT, for the payment of any deductibles or self-insured retention in connection with the insurance coverages required by this agreement, both for itself and all additional insureds. Any self-insured retention or deductible must be declared in writing at the time the Contractor submits its bid and must be specifically approved by WisDOT prior to execution of the Contract. The Contractor shall be responsible for any loss arising out of coverage denial by its insurance carrier. The Contractor may not procure policies that limit who may pay the SIR or deductible; rather, any SIR shall be payable by either the Contractor or the Subcontractor and the Contractor may not have a policy that prevents WisDOT from accessing or triggering coverage unless the SIR is paid by the Contractor. Contractor shall also ensure that similar conditions are incorporated into all subcontracts. In the event that WisDOT is required to pay any deductible and/or SIR to access any insurance policy, Subcontractor shall promptly reimburse the Contractor for such payment.

17. No Waiver of Insurance Requirements:

IT IS EXPRESSLY AGREED BETWEEN WISDOT AND THE CONTRACTOR THAT THE FAILURE OF WISDOT TO REQUIRE OR VERIFY COMPLETE AND TIMELY PERFORMANCE OF THE CONTRACTOR'S OBLIGATIONS UNDER THIS CONTRACT SHALL NOT BE A WAIVER BY WISDOT OF ANY RIGHT OF WISDOT TO REQUIRE THE CONTRACTOR TO COMPLY WITH THESE INSURANCE REQUIREMENTS AND/OR TO SEEK DAMAGES BECAUSE OF THE CONTRACTOR'S FAILURE TO COMPLY WITH THE INSURANCE REQUIREMENTS IN THIS CONTRACT.

18. Audits. Contractor agrees that the WisDOT, the OCIP administrator, and/or any OCIP insurer may audit Contractor's or any of its Subcontractor's Project payroll records, books and records, insurance coverage's, insurance cost information, or any other information that Contractor provides to the WisDOT, the OCIP administrator, or the OCIP insurers to confirm their accuracy and to assure that costs of OCIP coverage's are not included in any payment for the work.

19. The WisDOT's Election to Modify or Discontinue OCIP. The WisDOT may, for any reason, modify the OCIP coverage's, discontinue the OCIP, or request that Contractor or any of its Subcontractors withdraw from the OCIP upon thirty (30) days written notice. Upon such notice Contractor and/or one or more of its Subcontractors, as specified by the WisDOT in such notice, shall obtain and thereafter maintain at the WisDOT's expense, Contractor Maintained Coverages (or a portion thereof as specified by the WisDOT) of the OCIP coverage's. The form, content, limits of liability, cost, and the insurer issuing such replacement insurance shall be subject to the WisDOT's approval.

20. **Withhold of Payments.** The WisDOT may withhold from any payment owing to Contractor the costs of OCIP coverage's if included in a request for payment. In the event the WisDOT audit of Contractor's records and information as permitted in the Contract, this special provision, or other contract documents reveals a discrepancy in the insurance, payroll, safety, or any other information required by the contract documents to be provided by Contractor to the WisDOT, or to the OCIP administrator, or reveals the inclusion of costs of OCIP coverage's in any payment for the work, the WisDOT will have the right to full deduction from the Contract Price of all such costs of OCIP coverage's and all audit costs. Audit costs will include but not be limited to the fees of the OCIP administrator, and the fees of attorneys and accountants conducting the audit and review. If the Contractor or its Subcontractors fail to timely comply with the provisions of this special provision or the requirements of the Insurance Manual, the WisDOT may withhold any payments due Contractor and its Subcontractors until such time as they have performed the requirements of this special provision. Such withholding by the WisDOT will not be deemed to be a default hereunder.

21. **Waiver of Claim and Waiver of Subrogation:**

    Where permitted by law, Contractor hereby waives all rights of recovery under subrogation because of deductible clauses, inadequacy of limits of any insurance policy, limitations or exclusions of coverage, or any other reason against the WisDOT, the State of Wisconsin and any of its Agencies or Officer's, Agents or employees including without limitation, the OCIP administrator, its or their officers, agents, shareholders or employees of each, if any, and any other Contractor or Subcontractor performing work or rendering services on behalf of the WisDOT in connection with the planning, development and construction of the Project, and Contractor shall require that all Contractor maintained insurance coverage related to the work include clauses providing that each insurer shall waive all of its rights of recovery by subrogation for claims described above.

22. **Waiver of Subrogation.** Where permitted by law, Contractor shall also require that all Contractor maintained insurance coverage related to the work include clauses providing that each insurer shall waive all of its rights of recovery by subrogation against the WisDOT, the State of Wisconsin and any of its Agencies or Officer's, Agents or employees including without limitation, the OCIP administrator, its or their officers, agents, shareholders or employees of each, if any . Contractor shall require similar written express waivers and insurance clauses from each of its Subcontractors. A waiver of subrogation shall be effective as to any individual or entity even if such individual or entity (a) would otherwise have a duty of indemnification, contractual or otherwise, (b) did not pay the insurance premium directly or indirectly, and (c) whether or not such individual or entity has an insurable interest in the property damaged.

24. **Conflicts**. In the event of a conflict, the provisions of this special provision shall govern, then the provisions of the contract and its other related contact documents, then the provisions of the Insurance Manual.

25. **Safety.** Contractor shall be solely responsible for safety on the Project and safety relating to the Work. Contractor shall establish a safety program that, at a minimum, complies with all local, state and federal safety standards, and any safety standards established by the WisDOT for the Project, including the Project Safety and Health Plan Manual.

31. Notice to Contractor – Traffic Signal Equipment Lead Time.

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

32. Notice to Contractor – Known Contamination Beyond Construction Limits.

The department completed testing for contaminated soil at locations within this project where excavation is required and at locations beyond the construction limits. The department's Phase 2.5 investigation revealed soil containing foundry sand is present beyond the planned construction limits at the following location as shown on the plans:

- Station 4759RRW+00 to 4766RRW+00, from reference line to project limits right. Soil contaminated with foundry sand is present from approximately 0 to 4 feet bgs.

The soil containing foundry sand at the above location is expected to be beyond the excavation limits necessary to complete the work under this project. Control construction operations near this location to ensure that they do not extend beyond the excavation limits indicated in the plans. If contaminated soil or groundwater or other signs of non-exempt solid waste, tanks or containers are encountered on the project during excavation, terminate excavation in the area and notify the engineer.

The Hazardous Materials Report is available by contacting:

Michael Cape, P.G.
WisDOT SE Region Hydrogeologist
Phone: (262) 548-5930
michael.cape@dot.wi.gov

33. Notice to Contractor – Mayfair Pond Construction.

In fall of 2012, Butler's Garter Snake exclusion fencing will be installed by others at the existing Mayfair Pond located in the northeast quadrant of the STH 100 and W. Watertown Plank Road intersection. In spring of 2013, snakes will emerge from hibernation and move into neighboring upland areas. If construction of the Mayfair Pond has not been completed by May 1, 2013, coordinate with the Wisconsin DNR. The Wisconsin DNR contact is Mr. Michael Thompson, (414) 303-3408.

34. Notice to Contractor – Minor Retaining Wall 5.

Minor Retaining Wall 5 will be constructed in the northeast corner of the STH 100 and W. Watertown Plank Road intersection abutting Parcel 48. The owner of Parcel 48 is planning on building a second retaining wall offset from Minor Retaining Wall 5. Coordinate with the property owner for placement of future stairs between the two walls along W. Watertown Plank Road as shown in the plans. The property owner contact is Mr. Joseph McGuire, Property Manager for Wangard Partners, (414) 935-4122.

35. Notice to Contractor, Notification of Demolition and/or Renovation.

James Gondek, License Number AII-108099, inspected Structure B-40-0433 for asbestos on June 13, 2011. No regulated Asbestos Containing Material (RACM) was found on this structure. A copy of the inspection report is available from: Jay Obenberger, 141 NW Barstow Street, PO Box 798, Waukesha, WI 53187-0798.

In accordance with NR447 and DHS159 , ensure that DNR or DHS receives a completed Notification of Demolition and/or Renovation (DNR Form 4500-113 (R 4/11), or subsequent revision) via U.S. mail, hand-delivery, or using the online notification system at least 10 working days prior to beginning any construction or demolition. Pay all associated fees. Provide a copy of the completed 4500-113 form to Jay Obenberger, 141 NW Barstow Street, PO Box 798, Waukesha, WI 53187-0798 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:

- Site Name: Structure B-40-0433, USH 18-STH 100 over UPRR (CNWRR)
- Site Address: 43°02'06.00"N 88°02'48.00"W; Section 29, T-7-N, R-21-E
- Ownership Information: WisDOT Transportation Southeast Region, 141 NW Barstow Street, PO Box 798, Waukesha, WI 53187-0798
- Contact: Jay Obenberger
- Phone: 414-750-3259
- Age: 40 years. This structure was constructed in 1973.
- Area: 36041 SF of deck

Insert the following paragraph in Section 6.g.:

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

107-125 (20120615)

36. Notice to Contractor – Wheaton Franciscan Hospital Coordination.

Wheaton Franciscan Hospital maintains an irrigation system on Parcels 4 and 5 along the west side of STH 100. Coordinate with the property owner for the placement of irrigation conduit under their driveways and the Hospital Access Road. The property owner contact is Mr. Chuck Graupner, attorney for Michael Best, (414) 225-2770.

37. Notice to Contractor – ATC Conduit.

American Transmission Company (ATC) will be constructing a 3-foot by 3-foot concrete encased electrical duct bank in the eastbound lanes of W. Watertown Plank Road. The work will be by others as part of an ATC let contract.

During Stage 2 of construction as shown in the plans, remove existing pavement and provide the eastbound W. Watertown Plank Road work zone to the ATC contractor for 42 consecutive calendar days. Provide a 10 business day advance notice to Mr. Brian Black of ATC (262) 506-6907; bblack@atcllc.com of when the work zone will be available. Coordinate in advance and plan operations accordingly.

38. Notice to Contractor – Razing Existing Buildings.

Two existing buildings will be razed within the project limits. Demolition of the office building located at 620 N. Mayfair Road will be performed by others prior to construction as part of a separate department contract. Demolition of the former hotel located at 115 N. Mayfair Road is part of this contract as shown in the plans and special provisions. Plan operations accordingly and coordinate demolition work with Hotel Pond and proposed utility construction.

39. Clearing and Grubbing, Emerald Ash Borer.

This applies to projects in the emerald ash borer (EAB) quarantined zones to include Fond du Lac, Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Washington and Waukesha counties.

Supplement standard spec 201.3 with the following:

The emerald ash borer (EAB) has resulted in a quarantine of ash trees (*Fraxinus sp.*) by the Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP) and the Wisconsin Department of Natural Resources (DNR).

Ash trees species attacked by emerald ash borer include the following:

- Green ash (F. pennsylvanica) is found throughout the state, but is most common in southern Wisconsin. It may form pure stands or grow in association with black ash, red maple, swamp white oak, and elm. It grows as an associate in upland hardwood stands, but is most common in and around stream banks, floodplains, and swamps.
- Black ash (F. nigra) is distributed over the entire state but is most frequently found in northern Wisconsin. It is most common in swamps, but is also found in other wet forest types.
- Blue ash (F. quadrangulata) is a threatened species that is currently found only at a few sites in Waukesha County. The species is at the edge of its range in Wisconsin, but is common in states farther south. The species is not of commercial importance. Blue ash twigs are 4-sided.
- White ash (F. americana) tends to occur primarily in upland forests, often with Acer saccharum.

The quarantine of ash trees includes all horticultural cultivars of the species listed above.

Note that blue ash twigs are 4-sided. All other Wisconsin ash trees have round stems. Also, Mountain ash (*Sorbus americana and S. decora*) is not a true ash and is not susceptible to EAB infestation.

The contractor shall be responsible for hiring a certified arborist to identify all ash trees that will be cleared and grubbed for the project. In addition, prior to scheduled clearing and grubbing activities, the arborist shall mark all ash trees with florescent lime flagging tied around the trunk perimeter.

Follow and obey the following Wisconsin Department of Agriculture, Trade, and Consumer Protection order:

ATCP 21.17 Emerald ash borer; import controls and quarantine.

Importing or Moving Regulated Items from Infested Areas; Prohibition.
Except as provided in subparagraph (3), no person may do any of the following:

(a) Import a regulated item under sub. (2) into this state if that item originates from an emerald ash borer regulated area identified in 7CFR 301.53-3.

(b) Move any regulated item under sub. (2) out of an emerald ash borer regulated area that is identified in 7CFR 301.53-3 and located in this state.

Note: the United States Department of Agriculture-Animal and Plant Health Inspection Service (USDA-APHIS) periodically updates the list of regulated areas in 7CFR 301.53-3. Subsection (1) applies to new regulated areas as those areas are identified in the CFR.

Regulated Items. The following are regulated items for purposes of subparagraph (1):

The emerald ash borer, Agrilus planipennis Fairmaire in any living stage.

Ash trees.

Ash limbs, branches, and roots.

Ash logs, slabs or untreated lumber with bark attached.

Cut firewood of all non-coniferous species.

Ash chips and ash bark fragments (both composted and uncomposted) larger than one inch in diameter.

Any other item or substance that may be designated as a regulated item if a DATCP pest control official determines that it presents a risk of spreading emerald ash borer and notifies the person in possession of the item or substance that it is subject to the restrictions of the regulations.

Regulatory Considerations
The quarantine means that ash wood products may not be transported out of the quarantined area.

Clearing and grubbing includes all ash trees that are to be removed from within the project footprint. If ash trees are identified within clearing and grubbing limits of the project, the following measures are required for the disposal:

Chipped Ash Trees
May be left on site if used as landscape mulch within the project limits. If used as mulch on site, chips may not be applied at a depth greater than standard mulch applications as this will impede germination of seeded areas.

May be buried on site within the right-of-way in accordance to standard spec 201.3 (14).

May be buried on adjacent properties to projects within the quarantined zone with prior approval of the engineer in accordance to standard spec 201.3 (15).

May be trucked to a licensed landfill within the quarantined zone with the engineer's approval in accordance to standard spec 201.3 (15).

Burning chips is optional if in compliance with standard spec 201.3.

Chips must be disposed of immediately if not used for project mulching and may not be stockpiled and left on site for potential transport by others. Chips may be stockpiled temporarily if they will be used for project mulching and are not readily accessible to the public.

Chipper equipment must be cleaned following post-chipping activities to ensure no spread of wood chip debris into non-quarantined counties.

Ash logs, Branches, and Roots
May be buried without chipping within the existing right-of-way or on adjacent properties in accordance to standard spec 201.3 (14)(15).

May be trucked to a licensed landfill within the quarantined zone with the engineer's approval in accordance to standard spec 201.3 (15).

Burning is optional if in compliance with standard spec 201.3.

Ash logs, branches, and roots must be disposed of immediately and may not stockpiled.

All additional costs will be incidental to clearing and grubbing items.

Do not bury or use mulch in an area that will be disturbed again during later phases of the project.

Anyone moving firewood or ash products from the state or these counties is subject to state and federal fines up to $1,000.00. All fines are the responsibility of the contractor. Obtain updated quarantine information at the DNR Firewood Information Line at (800) 303-WOOD.

Furnishing and Planting Plant Materials
Supplement standard spec 632.2.2 with the following:

Ash trees may be obtained from inside or outside the quarantine area and planted within the quarantined area. Ash trees from within the quarantine area may not be transported and planted into the non-quarantined area.

Updates for Compliance
Each year, as a service, the Wisconsin department of agriculture, trade and consumer protection distributes an updated federal CFR listing to nursery license holders and other affected persons in this state. More frequent updates, if any, are available on the Department of Agriculture, Trade, and Consumer Protection (DATCP) website at

www.datcp.state.wi.us . Subsection (1) applies to new regulated areas as those areas are identified in the CFR, regardless of whether affected persons receive update notices from the DATCP. Persons may request update notices by calling (608) 224−4573, by visiting the DATCP website, or by writing to the following address:

Wisconsin Department of Agriculture, Trade and Consumer Protection
Division of Agricultural Resource Management
P.O. Box 8911
Madison WI 53708−8911

Regulated Items
More frequent updates, if any, are available on the DATCP website at www.datcp.state.wi.us . Subsection (1) applies to new regulated areas as those areas are identified in the CFR, regardless of whether affected persons receive update notices from DATCP. Persons may request update notices by calling (608) 224−4573, by visiting the DATCP website, or by writing to the above address.

40. CPM Progress Schedule.

Submit a CPM Progress Schedule and updates in accordance to standard spec 108.4.4, and as hereinafter provided.

To ensure compatibility with the Master Program Schedule, use the latest version of Primavera Project Planner (P6), by Primavera Systems, Inc., Bala Cynwyd, PA to prepare the Initial CPM Progress Schedule, Monthly CPM Progress Updates and other CPM Progress Revisions requested by the engineer.

Within five business days after award, the department will provide its current standard Work Breakdown Structure and activity codes for the contractor to use to develop the Initial CPM Progress Schedule.

Designate a Project Scheduler who will be responsible for scheduling the Work and submit for approval a professional resume describing a minimum of three years of scheduling experience on interstate-highway reconstruction work of similar size and complexity, including recent experience with P6.

With each Monthly CPM Progress Schedule Update also include:

- Activities underway and as-built dates for the past month.
- On a monthly basis, the department and the contractor shall agree on the as-built dates depicted in the Monthly CPM Progress Schedule Update or document any disagreements. Use the as-built dates from the Monthly CPM Progress Schedule Update for the month when updating the CPM schedule.
- Provide actual as-built dates for completed activities through final acceptance of the project.

41. Pay Plan Quantity.

A Bid Items Designated as Pay Plan Quantity

Replace standard spec 109.1.1.2 with the following:

If the schedule of items designates a bid item with a **P** in the title, the department will not measure that bid item. The department will use the plan quantity, the approximate quantity shown on the schedule of items, for payment unless a contract revision affects a designated bid item.

If the engineer revises the contract under standard spec 104.2, the department will adjust the quantity of designated items that are affected by the revised work. The engineer will adjust the affected quantity, with a contract modification as defined in standard spec 101.3, regardless of the magnitude of the revised work, which may result in either an increase or a decrease from the quantity shown on the schedule of items. The department will measure revised work as specified in standard spec 109.1.1.1. If the engineer revises the contract to eliminate a designated item, the engineer will not pay for the designated item, except as specified in standard spec 109.5.

The approximate quantity shown on the schedule of items for a designated item is for information only and only an estimate. The engineer makes no guarantee that the quantity, which can be determined by computations based on contract information, will equal the approximate quantity shown on the schedule of items. The engineer will not make a quantity adjustment for discrepancies.

42. Waste.

Use excess earthwork at the west side of the north Railroad Tunnel Extension as shown in the plans and the earthwork table. In addition, the contractor is advised to contact the Milwaukee County Research Park as a possible waste site. The Milwaukee County Research Park contact is Mr. Guy Mascari, (414) 778-1400, 10437 Innovation Drive, Suite 123, Wauwatosa, WI 53226.

43. Breaking Concrete Pavement.

No mechanical impact breaking of existing concrete pavement is allowed within 50 feet of the back face of the railroad tunnel walls of B-40-433, which is located underneath the intersection of STH 100 and W. Bluemound Road. Schedule a pre-removal meeting with the engineer at least 7 calendar days prior to the start of removing pavement. Concrete breaking equipment and removing pavement methodology over B-40-433 must be approved by the engineer.

44. Work By Others – Removing Signs.

The City of Wauwatosa and City of Milwaukee will remove or move local street signs and supports as shown in the plans.

Give the City of Wauwatosa and City of Milwaukee 10 business days advance notice before beginning work in areas where signs are to be removed or moved. The municipalities will remove or move the signs within 5 business days. The City of Wauwatosa contact for coordination of this work is Mr. William Wehrley, City Engineer, at (414) 479-8929 and the City of Milwaukee contact is Mr. Jeff Polenske, City Engineer, at (414) 286-3701.

45. Coordination with Businesses.

The department will arrange and conduct a meeting 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. Hold the first meeting prior to the start of work under this contract and hold two meetings per month thereafter.

46. Business Parking Lots.

Business parking lots will be impacted by the project. Only occupy parking stalls while actively working in the parking lot. Notify business owners and the department at least 5 calendar days prior to beginning work in the parking lot.

No materials are allowed to be stored within parking stalls without the consent of the business owner and approval of the engineer. Parking of personal vehicles in business parking lots is not allowed without the consent of both the business and property owner.

Restore parking within 2 calendar days of removing pavement at all parking stalls except for stalls in the immediate vicinity of the construction for storm sewer Structure S491 using base aggregate dense 1 1/4 –inch. Base aggregate for restoring parking stalls will be paid for under the item Base Aggregate Dense 1 1/4 –Inch. Include the cost of labor and equipment necessary to place and remove the temporary parking stall in the contract unit price for Base Aggregate Dense 1 1/4 –Inch. Each business parking stall except for stalls in the immediate vicinity of the construction for storm sewer Structure S491 shall not be impacted for more than a total of 7 calendar days for all construction activities including but not limited to sawing, removing, excavating, placing storm sewer, backfilling, restoring, placing curb, replacing or repairing pavement, and finishing.

Keep the parking lots open to traffic and parking except for stalls in the immediate vicinity of the construction for storm sewer Structure S491. Do not impact parking stalls located in the immediate vicinity of storm sewer Structure S491 for more than a total of 21 calendar days for all construction activities including but not limited to sawing, removing, excavating, placing storm sewer, backfilling, restoring, placing curb, replacing or repairing pavement, and finishing.

47. Construction Trenches.

Upon completion of the normal work day and when work is not in progress, all trenches within the roadway or sidewalk resulting from construction activities which are not fully backfilled shall be plated with steel plates suitable for carrying a vehicle or pedestrian traffic, respectively, as directed by the engineer. The plating shall be in addition to the barricades and traffic control devices required for lane colure or traffic control, and shall be incidental to other items of work.

48. Milwaukee County Transit System.

The Milwaukee County Transit System (MCTS) maintains multiple bus routes throughout the project corridor along STH 100, W. Bluemound Road, W. Research Drive, and W. Watertown Plank Road. Notify MCTS at least 10 business days prior to beginning work. The MCTS contact is Mr. Dave Ziarek, (414) 343-1764.

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

MCTS will remove their existing bus stop signs and shelters. Notify MCTS at least 10 days in advance. MCTS will install new bus stop signs and shelters prior to the opening of traffic on the new roadway pavement. Notify MCTS at least 10 business days prior to opening new pavement to vehicular traffic.

Coordinate with MCTS to provide temporary bus stops at locations approved by MCTS and the engineer. Provide a safe boarding zone that is clear of debris and ADA compliant at each temporary bus stop. MCTS will install temporary bus stop signs if notified at least 10 business days in advance.

49. Oak Leaf Trail.

The Oak Leaf Trail will be impacted in three locations for storm sewer construction north of W. Watertown Plank Road. Notify the Milwaukee County Parks Department at least 5 calendar days prior to beginning work on the trail. The Milwaukee County Parks Department contact is Mr. Kevin Haley, Landscape Architect, (414) 257-6242.

Only disrupt access to the Oak Leaf Trail while actively working on the trail. No materials are allowed to be stored along the trail. Restore access to the Oak Leaf Trail within 2 calendar days of removing pavement at each storm sewer outfall location using base aggregate dense 1 1/4 –inch. Base aggregate for restoring the trail will be paid for under the item Base Aggregate Dense 1 1/4 –Inch. Include the cost of labor and equipment necessary to place and remove the temporary trail in the contract unit price for Base Aggregate Dense 1 1/4 –Inch. Do not impact the Oak Leaf Trail for more than a total of 10 calendar days for all construction activities including but not limited to sawing, removing, excavating, placing storm sewer, backfilling, restoring, paving, and finishing.

50. Temporary Sidewalks and Driveways.

Construct and maintain, in satisfactory condition, temporary sidewalks and driveways at locations specified by the engineer. Construct temporary sidewalks and driveways of base aggregate dense 1 1/4 –inch to dimensions determined by the engineer.

Base aggregate for construction of the temporary sidewalks and driveways will be paid for under the item Base Aggregate Dense 1 1/4 –Inch. Include the cost of labor and equipment necessary to place and remove the temporary sidewalks and driveways in the contract unit price for Base Aggregate Dense 1 1/4 –Inch.

51. Municipality Acceptance of Sanitary Sewer and Water Main Construction.

Both the department and City of Wauwatosa personnel will inspect construction of sanitary sewer and water main under this contract. However, construction staking, testing, and final acceptance of the sanitary sewer and water main construction will be by the City of Wauwatosa.
105-001 (20061009)

52. Protecting and Restoring Property.

Supplement standard spec 107.11.1 (3) with the following:

Safety
The engineer will, at all times, have the authority to prohibit or halt the contractor's operations if it is apparent that through the methods being employed, the safety and convenience of the traveling public is being jeopardized or that vibration levels are above allowable levels.

Condition Surveys
Unless specified elsewhere in these special provisions for specific items of work, the department, in lieu of the contractor, will conduct preconstruction surveys of structures that may be potentially affected by vibration prior to any work by the contractor. These preconstruction survey records will be made available to the contractor for review. Unless specified elsewhere in these special provisions for specific items of work, the contractor shall have the option to conduct and document post-construction surveys of any nearby buildings or structures that have a potential for vibration damage and make these records available to the engineer for review. The contractor shall be responsible for any damage resulting from excessive vibration-causing operations.

These condition surveys, when required by the contractor in these special provisions under the specific items of work, shall consist of visually inspecting and recording all existing defects in the structures either before and or after construction. Photographs and/or videotape may be used to assist in documentation. When required, submit a written report to the department detailing the visual and photographic investigation of potentially affected

structures. This report will include copies of the contractor preconstruction survey(s) and contractor post-construction survey(s) and discuss any discrepancies and findings of these surveys.

Vibration Control and Monitoring.
When performing bridge pile driving or bridge demolition, monitor the operations with an approved seismograph, located as approved, between the vibration-causing work and the closest structure subject to vibration damage, and as close as practical to the subject structure.

When performing steel sheet driving, shaft drilling or any other non-listed activities that could induce the potential for vibration damage to adjacent buildings, structures, or utilities, monitor the operations as directed by the engineer with an approved seismograph, located as approved, between the vibration-causing work and the closest structure subject to vibration damage, and as close as practical to the subject structure.

A vibration specialist shall perform vibration monitoring with a seismograph, subject to the engineer's approval. The vibration specialist shall monitor vibration levels in accordance to the specification provided below: Vibrations measured at the foundation or basement floor of any structure shall not exceed the following limitations:

Frequency	Displacement Amplitude (in inches)
2	0.1
5	0.01
10	0.005
20	0.0018
30	0.001
40	0.0008
50	0.0006
60	0.0005

Furnish data recorded for each occurrence to the engineer prior to the next vibration-causing work. Include the following:

- Identification of vibration monitoring instrument used.
- Description of contractor's equipment.
- Name of qualified observer and interpreter.
- Distance and direction of recording station from vibration-causing area.
- Type of ground at recording station and material on which the instrument is sitting.
- Principal frequency, amplitude and particle velocity in each component.
- A dated and signed copy of records of seismograph readings.
- Contractor documentation of any operational changes necessary to reduce vibration levels below the acceptable levels.

If the recorded vibration data exceeds the allowable levels as specified in this article, immediately halt all work creating the excessive vibrations until such time that the contractor changes his operations and can show that acceptable vibration levels will be maintained.

All costs associated with the work described herein to be performed by the contractor are considered incidental to the bid item(s) inducing the vibration.

53. Excavation Common.

Add the following to standard spec 205.2.2:

Remove wood, concrete obstructions, existing street lighting pull boxes, and existing silt fence under the Excavation Common bid item. Review geotechnical investigation information and soil borings. Removal and disposal of wood, concrete obstructions, existing street lighting pull boxes, and existing silt fence are incidental to the item, Excavation Common.

54. QMP Subgrade.

A Description

This special provision describes requirements for subgrade materials within the roadway foundation as defined in subsection 101.3 of the standard specifications. Conform to standard spec 207 as modified in this special provision for all work within the roadway foundation at the following locations:

- All roadways, access roads, driveways, and parking lots in the contract.

Provide and maintain a quality control program. A quality control program is defined as all activities, including process control inspection, sampling and testing, documentation, and necessary adjustments in the process that are related to the construction of subgrade which meets all the requirements of this provision.

Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes sampling and testing procedures. The contractor may obtain the CMM from the department's web site at:
http://roadwaystandards.dot.wi.gov/standards/cmm/index.htm

B Materials

B.1 Quality Control Plan

Submit a comprehensive written quality control plan to the engineer at or before the pre-construction meeting. Do not perform grading work before the engineer reviews and accepts the plan. Construct the project as the plan provides.

Do not change the quality control plan without the engineer's review. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in the contractor's laboratory as changes are adopted. Ensure that the plan provides the following elements:

1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
2. The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication process that will be used, and action time frames.
3. An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.
4. Location of the QC laboratory, retained sample storage, and control charts and other documentation.
5. A summary of the locations and calculated quantities to be tested under this provision.
6. An explanation regarding the basis of acceptance for material that cannot be tested by nuclear methods due to a high percentage of oversized particles.

B.2 Personnel

Perform the quality control sampling, testing, and documentation required under this provision using HTCP certified technicians. Have a grading technician certified under HTCP at level I present at the site during all subgrade fill placement, compaction, and nuclear testing activities. Have a nuclear density technician certified under HTCP at level I perform field density and field moisture content testing.

B.3 Laboratory

Perform quality control testing in a department-qualified laboratory. Obtain information on the Wisconsin laboratory qualification program from:

Materials Laboratory
3502 Kinsman Boulevard
Madison, Wisconsin 53704-2583
Telephone: (608) 246-7938
http://www.dot.state.wi.us/business/engrserv/lab-qualification.htm

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B.4 Equipment

Furnish the necessary equipment and supplies for performing quality control testing. Ensure that all testing equipment conforms to the equipment specifications applicable to the required testing methods. The engineer may inspect the measuring and testing devices to confirm both calibration and condition. Calibrate all testing equipment according to the CMM and maintain a calibration record at the laboratory.

Furnish nuclear gauges from the department's approved product list at http://www.atwoodsystems.com/materials. Ensure that the gauge manufacturer or an approved calibration service calibrates the gauge within 12 months before using it on the project. Retain a copy of the calibration certificate with the gauge. Nuclear density gauge calibration verification is required daily when earthwork construction operations require

testing under this special provision article. This calibration verification shall be performed using the departments "Validator" apparatus which is located at the WisDOT Zoo Interchange Construction Field Office: 2424 S. 102nd St., West Allis, Wisconsin 53227. The contractor must 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. 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 include AASHTO T 89, AASHTO T 90, AASHTO T 27, and AASHTO T 11. Classify each soil type selected according to the AASHTO soil classification system based on the characterization tests. Do not begin grading operations until the engineer accepts the soil source study.

Use the soil types identified in the soil source study with corresponding maximum densities and optimum moisture values to determine the compaction compliance on the project. Continue the soil source study in those areas of cuts greater than 15 feet that were not accessible during the initial study. Include data on additional soil types if project conditions change. Ensure that tests of additional soil types are complete and the engineer accepts the results before incorporating the material into the roadway foundation.

Split each Proctor sample and identify so as to provide comparison with the department's test results. Unless the engineer directs otherwise, retain the QC split samples for 14 calendar days and promptly deliver the department's split samples to the department at:

Regional Materials Laboratory
935 S. 60th Street
West Allis, Wisconsin 53214
Telephone: (414) 266-1158

Retain and identify two representative samples of each roctor. 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 trenches.
- Structure and granular backfill placed at bridge abutments.

Ensure that all tests are recorded and become part of the project records. Plot required test results on the control charts. Include random and engineer-requested testing but only include the contractor's randomly selected QC test results in the 4-point running average. The contractor may plot other contractor-performed process control or informational tests on the control charts, but do not include them in 4-point running averages.

Post control charts in an engineer-approved location and update daily. Ensure that the control charts include the project number, the test number, each test element, the applicable control limits, the contractor's individual test results, the running average of the last 4 data points, and the engineer's quality verification test data points. Use the control charts as part of a process control system for identifying potential problems and assignable causes. Format control charts according to the CMM.

Submit control charts to the engineer in a neat and orderly manner within 10 business days after completing subgrade construction.

B.6.2 Records

Document all observations, inspection records, adjustments to fill placement procedures, soil changes, and test results daily. Note the results of the observations and inspection records as they occur in a permanent field record.

Provide copies of the field density and field moisture running average calculation sheets, the one-point Proctor tests, records of procedure adjustments, and soil changes to the engineer daily.

Submit original testing records to the engineer in a neat and orderly manner within 10 business days after completing subgrade construction.

B.7 Contractor Testing

B.7.1 General

Have a grading technician certified under HTCP at level I present during all subgrade 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.

Test areas of suspect compaction or areas which appear to be nonconforming as determined by the engineer.

B.7.2 Field Density and Field Moisture

Perform the field density and field moisture tests using the nuclear density meter method according to AASHTO T 310. Ensure that each field density test material is related to one of the specific soil types identified in the soil source study in determining the percent compaction. Use textural identification as the primary method of establishing this relationship. Utilize the representative samples retained from the soil source study when performing the textural identification. Use a coarse particle correction according to AASHTO T 224.

If field density and field moisture tests cannot be performed by the nuclear density method due to a high percentage of oversized particles as determined according to AASHTO T 99, observe the placement of the embankment and document the basis of acceptance. Document daily quantities of untested embankment and locations where untested embankment is placed, and keep a cumulative quantity of untested embankment material for the duration of the project. Include the daily documentation and a summary of the cumulative quantity of untested embankment material with the project records.

B.7.3 One-Point Proctor

Obtain a representative sample of the fill material and test according to AASHTO T 272. Compare the sample to the curves developed in the soils source study to determine the maximum dry density and optimum moisture. Use the appendix for AASHTO T 272 as a guide in this determination.

B.7.4 Testing Frequency

B.7.4.1 Subgrade Embankment

Perform the required tests at the following frequencies:

Test	Minimum Frequency
Field Density and Moisture (AASHTO T 310)	One per 2,000 cubic yards or one test per grading area per day whichever yields the most tests.
One-Point Proctor (AASHTO T 272)	One per 9,000 cubic yards.

B.7.4.2 Subgrade Embankment Within 200 Feet of Bridge Abutments

Perform the required tests at the following frequencies:

Test	Minimum Frequency
Field Density and Moisture (AASHTO T 310)	One per 1,000 cubic yards or one test per grading area per day whichever yields the most tests.
One-Point Proctor (AASHTO T 272)	One per 9,000 cubic yards.

B.7.4.3 Subgrade Cut

Perform the required tests at the following frequencies:

Test	Minimum Frequency
Field Density and Moisture (AASHTO T 310)	One test per 1,000 linear feet or one test per cut area whichever yields the most tests. The testing will be completed at the finished subgrade elevation.

B.7.4.4 Subgrade Embankment in Pipe Culvert, Sewer and Waterline Trenches

Perform the required tests at the following minimum frequencies per trench run between structures. Test trenches individually at the frequency listed below. For example, lateral lines and trunk lines are to be considered individual trenches:

Test	Minimum Frequency
Field Density and Moisture (AASHTO T 310)	One test per 100 CY of backfill placed or one test per day whichever yields the most tests.
One-Point Proctor (AASHTO T 272)	One per 3,000 cubic yards.

B.7.4.5 Structure and Granular Backfill at Bridge Abutments

Perform the required tests at the following minimum frequencies:

Test	Minimum Frequency
Field Density and Moisture (AASHTO T 310)	One test per 2 feet of vertical backfill height per abutment.
One-Point Proctor (AASHTO T 272)	One per 3,000 cubic yards.

B.7.5 Compaction Zones

B.7.5.1 Subgrade Embankment

Embankment material placed within 6 feet of the finished subgrade elevation is classified as upper zone material. Material placed more than 6 feet below the finished subgrade elevation is classified as lower zone material.

B.7.5.2 Subgrade Embankment Within 200 Feet of Bridge Abutments

All embankment material placed within 200 feet of bridge abutments is subject to the quality controls for upper zone material.

B.7.5.3 Subgrade Cut

Subgrade material in cut areas is subject to the quality controls for upper zone material.

B.7.5.4 Subgrade Embankment in Culvert Pipe Trenches

Material placed within culvert pipe trenches is subject to the quality controls for the zone that the material is located in.

B.7.5.5 Structure and Granular Backfill at Bridge Abutments

All backfill material placed adjacent to bridge abutments is subject to the quality controls for upper zone material.

B.7.6 Control Limits

B.7.6.1 Field Density

The lower control limit for field density measurements in the upper zone is a minimum of 95.0% of the maximum dry density as determined by AASHTO T 99 or T 272 for the 4-point running average and a minimum of 92.0% of the maximum dry density for any individual test.

The lower control limit for field density measurements in the lower zone is a minimum of 93.0% of the maximum dry density as determined by AASHTO T 99 or T 272 for the 4-point running average and a minimum of 90.0% of the maximum dry density for any individual test.

B.7.6.2 Field Moisture Content

The upper control limit for the field moisture content in the upper and lower zones is 105.0% of the optimum moisture as determined by AASHTO T 99 or T 272 for the 4-point running average.

The lower control limit for the field moisture content in the upper and lower zones is 65.0% of the determined optimum moisture for the 4-point running average. There is no lower control limit for the field moisture of material having less than 5% passing the No. 200 sieve.

B.7.7 Corrective Action

Notify the engineer if an individual field density test falls below the individual test control limit. The subgrade in this area is unacceptable. Perform corrective actions, acceptable to the engineer, to improve the density of the subgrade material. After corrective action, perform a randomly located retest within the represented quantity to ensure that the material is acceptable.

Notify the engineer if the field density or field moisture running average point falls below the running average control limit for field density or outside the control limits for field moisture. The subgrade in this area is unacceptable. Perform corrective actions, acceptable to the engineer, to improve the quality of the material represented by the running average point. Retest each corrected area at a new random location within its represented quantity and determine a new 4-point running average. If the new running average is not acceptable, perform further corrective actions and retest at new random locations.

If the contractor's control data is proven incorrect resulting in a field density or field moisture point falling below the control limit for field density or outside the control limits for field moisture, the subgrade is unacceptable. Employ the methods described above for unacceptable material.

B.8 Department Testing

B.8.1 General

The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all verification and independent assurance personnel for the project.

The department will provide field density and field moisture test results to the contractor on the day of testing. Test results from Proctor split samples will be provided to the contractor within 7 business days after the sample has been received by the department.

B.8.2 Verification Testing

The department will have an HTCP technician, or ACT under the direction of a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified for contractor testing personnel for each test being verified. The department will notify the contractor before testing so the contractor can observe QV testing.

The department will test field density and field moisture randomly at locations independent of the contractor’s QC work. The department will use split samples for verification of Proctor testing. In all cases, the department will conduct the verification tests in a separate laboratory and with separate equipment from the contractor's QC tests.

The department will perform verification testing as follows:

- The department will conduct verification tests on Proctor split samples taken by the contractor. These samples may be from the Soil Source Study or the one-point Proctor or sample locations chosen by the engineer from anywhere in the process. The minimum verification testing frequency is one per 90,000 cubic yards, with at least one for each soil type identified in the Soil Source Study.
- The department will test the first split sample obtained by the contractor for the one-point Proctor. The engineer may select any contractor-retained sample for verification testing.

- The department will conduct at least one verification test for field density and field moisture per 30,000 cubic yards.

Plot verification tests on the contractor's quality control charts as specified in B.6.1. Do not include verification tests in the 4-point running average.

If verification tests are within specified control limits, no further action is required. If verification tests are not within specified control limits, the engineer and contractor will jointly investigate any testing discrepancies. The investigation may include additional testing as well as review and observation of both the department's and contractor's sampling and testing procedures and equipment. Both parties will document all investigative work.

Correct all deficiencies. If the contractor does not respond to an engineer request to correct a deficiency or resolve a testing discrepancy, the engineer may suspend grading work until action is taken. Resolve disputes as specified in B.9.

B.8.3 Independent Assurance Testing

Independent assurance is unbiased testing the department performs to evaluate the department's verification and the contractor's QC sampling and testing including personnel qualifications, procedures, and equipment. The department will perform the independent assurance review according to the department's independent assurance program, which may include one or more of the following:

1. Split sample testing.
2. Proficiency sample testing.
3. Witnessing sampling and testing.
4. Test equipment calibration checks.
5. Reviewing required worksheets and control charts.
6. Requesting that testing personnel perform additional sampling and testing.

Plot the independent assurance tests on the contractor's quality control charts as specified in B.6.1. Do not include independent assurance tests in the 4-point running average.

If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend grading work until action is taken. Resolve disputes as specified in B.9.

B.9 Dispute Resolution

The engineer and contractor shall make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate sampling and testing procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

If the project personnel cannot resolve a dispute and the dispute affects payment or could result in incorporating nonconforming product, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party tests to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

B.10 Acceptance

The department will accept the material tested under this provision based on the contractor QC tests unless it is shown through verification testing or the dispute resolution process that the contractor's test results are in error.

C (Vacant)

D (Vacant)

E Payment

Costs for furnishing all sampling, testing, and documentation required under this special provision are incidental to the work. If the contractor fails to perform the work required under this special provision, the department may reduce the contractor's pay. The department will administer pay reduction under the Non-performance of QMP administrative item.

55. QMP Base Aggregate.

A Description

A.1 General

(1) This special provision describes contractor quality control (QC) sampling and testing for base aggregates, documenting those test results, and documenting related production and placement process changes. This special provision also describes department quality verification (QV), independent assurance (IA), and dispute resolution.

(2) Conform to standard spec 301, standard spec 305, and standard spec 310 as modified here in this special provision. Apply this special provision to material placed under all of the Base Aggregate Dense and Base Aggregate Open Graded bid items, except do not apply this special provision to material classified as reclaimed asphaltic pavement placed under the Base Aggregate Dense bid items.

(3) Do not apply this special provision to material placed under the Aggregate Detours, Salvaged Asphaltic Pavement Base, Breaker Run, Select Crushed, Pit Run, Subbase, or Riprap bid items.

(4) Provide and maintain a quality control program, defined as all activities related to and documentation of the following:
1. Production and placement control and inspection.
2. Material sampling and testing.

(5) Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes required sampling and testing procedures. The contractor may obtain the CMM from the department's web site at:

http://roadwaystandards.dot.wi.gov/standards/cmm/index.htm

A.2 Contractor Testing for Small Quantities

(1) The department defines a small quantity, for each individual Base Aggregate bid item, as a plan quantity of 9000 tons or less of material as shown in the schedule of items under that bid item.

(2) The requirements under this special provision apply equally to a small quantity for an individual bid item except as follows:
1. The contractor need not submit a full quality control plan but shall provide an organizational chart to the engineer including names, telephone numbers, and current certifications of all persons involved in the quality control program for material under affected bid items.
2. Divide the aggregate into uniformly sized sublots for testing as follows:

Plan Quantity	Minimum Required Testing
≤ 1500 tons	One test from production, load-out, or placement at the contractor's option[1]
> 1500 tons and ≤ 6000 tons	Two tests of the same type, either from production, load-out, or placement at the contractor's option[1]
> 6000 tons and ≤ 9000 tons	Three placement tests[2] [3]

[1] If using production tests for acceptance, submit test results to the engineer for review prior to incorporating the material into the work. Production test results are valid for a period of 3 years.

[2] For 3-inch material, obtain samples at load-out.

[3] If the actual quantity overruns 9000 tons, create overrun sublots to test at a rate of one additional placement test for each 3000 tons, or fraction of 3000 tons, of overrun.

3. No control charts are required. Submit aggregate load-out and placement test results to the engineer within one business day of obtaining the sample. Assure that all properties are within the limits specified for each test.
4. Department verification testing is optional for quantities of 6000 tons or less.

(3) Material represented by a sublot with any property outside the specification limits is nonconforming. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

B Materials

B.1 Quality Control Plan

(1) Submit a comprehensive written quality control plan to the engineer at or before the pre-construction meeting. Do not place base before the engineer reviews and comments on the plan. Construct the project as that plan provides.

(2) Do not change the quality control plan without the engineer's review. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in each of the contractor's laboratories as changes are adopted. Ensure that the plan provides the following elements:

1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
2. The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication means that will be used, and action time frames.
3. A list of source and processing locations, section and quarter descriptions, for all aggregate materials requiring QC testing.
4. Test results for wear, sodium sulfate soundness, freeze/thaw soundness, and plasticity index of all aggregates requiring QC testing. Obtain this information from the region materials unit or from the engineer.
5. Descriptions of stockpiling and hauling methods.
6. Locations of the QC laboratory, retained sample storage, and where control charts and other documentation is posted.
7. An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.

B.2 Personnel

(1) Have personnel certified under the department's highway technician certification program (HTCP) perform sampling, testing, and documentation as follows:

Required Certification Level:	Sampling or Testing Roles:
Aggregate Technician IPP Aggregate Sampling Technician Aggregate Assistant Certified Technician (ACT-AGG)	Aggregate Sampling[1]
Aggregate Technician IPP Aggregate Assistant Certified Technician (ACT-AGG)	Aggregate Gradation Testing, Aggregate Fractured Particle Testing, Aggregate Liquid Limit and Plasticity Index Testing

[1] Plant personnel under the direct observation of an aggregate technician certified at level one or higher may operate equipment to obtain samples.

(2) A certified technician must coordinate and take responsibility for the work an ACT performs. Have a certified technician ensure that all sampling and testing is performed correctly, analyze test results, and post resulting data. No more than one ACT can work under a single certified technician.

B.3 Laboratory

(1) Perform QC testing at a department-qualified laboratory. Obtain information on the Wisconsin laboratory qualification program from:

Materials Management Section
3502 Kinsman Blvd.
Madison, WI 53704
Telephone: (608) 246-5388
http://www.dot.state.wi.us/business/engrserv/lab-qualification.htm

B.4 Quality Control Documentation

B.4.1 General

(1) Submit base aggregate placement documentation to the engineer within 10 business days after completing base placement. Ensure that the submittal is complete, neatly organized, and includes applicable project records and control charts.

B.4.2 Records

(1) Document all placement observations, inspection records, and control adjustments daily in a permanent field record. Also include all test results in the project records. Provide test results to the engineer within 6 hours after obtaining a sample. For 3-inch base, extend this 6-hour limit to 24 hours. Post or distribute tabulated results using a method mutually agreeable to the engineer and contractor.

B.4.3 Control Charts

(1) Plot gradation and fracture on the appropriate control chart as soon as test results are available. Format control charts according to CMM 8.30. Include the project number on base placement control charts. Maintain separate control charts for each base aggregate size, source or classification, and type.

(2) Provide control charts to the engineer within 6 hours after obtaining a sample. For 3-inch base, extend this 6-hour limit to 24 hours. Post or distribute charts using a method mutually agreeable to the engineer and contractor. Update control charts daily to include the following:

1. Contractor individual QC tests.
2. Department QV tests.
3. Department IA tests.
4. Four-point running average of the QC tests.

(3) Except as specified under B.8.2.1 for nonconforming QV tests, include only QC tests in the running average. The contractor may plot process control or informational tests on control charts, but do not include these tests, conforming QV tests, or IA tests in the running average.

B.5 Contractor Testing

(1) Test gradation, fracture, liquid limit and plasticity index during placement for each base aggregate size, source or classification, and type.

(2) Test gradation once per 3000 tons of material placed. Determine random sample locations and provide those sample locations to the engineer. Obtain samples after the material has been bladed, mixed, and shaped but before compacting; except collect 3-inch samples from the stockpile at load-out. Do not sample from material used to maintain local traffic or from areas of temporary base that will not have an overlying pavement. On days when placing only material used to maintain local traffic or only temporary base that will not have an overlying pavement, no placement testing is required.

(3) Split each contractor QC sample and identify it according to CMM 8.30. Retain the split for 7 calendar days in a dry, protected location. If requested for department comparison testing, deliver the split to the engineer within one business day.

(4) The engineer may require additional sampling and testing to evaluate suspect material or the technician's sampling and testing procedures.

(5) Test fracture for each gradation test until the fracture running average is above the lower warning limit. Subsequently, the contractor may reduce the frequency to one test per 10 gradation tests if the fracture running average remains above the warning limit.

(6) Test the liquid limit and plasticity index for the first gradation test. Subsequently, test the liquid limit and plasticity index a minimum of once per 10 gradation tests.

B.6 Test Methods

B.6.1 Gradation

(1) Test gradation using a washed analysis conforming to the following as modified in CMM 8.60:

Gradation..... AASHTO T 27
Material finer than the No. 200 sieve..... AASHTO T 11

(2) For 3-inch base, if 3 consecutive running average points for the percent passing the No. 200 sieve are 8.5 percent or less, the contractor may use an unwashed analysis. Wash at least one sample out of 10. If a single running average for the percent passing the No. 200 sieve exceeds 8.5 percent, resume washed analyses until 3 consecutive running average points are again 8.5 percent passing or less.

(3) Maintain a separate control chart for each sieve size specified in standard spec 305 or standard spec 310 for each base aggregate size, source or classification, and type. Set control and warning limits based on the standard specification gradation limits as follows:

- Control limits are at the upper and lower specification limits.
- There are no upper warning limits for sieves allowing 100 percent passing and no lower control limits for sieves allowing 0 percent passing.

- Dense graded warning limits, except for the No. 200 sieve, are 2 percent within the upper and lower control limits. Warning limits for the No. 200 sieve are set 0.5 percent within the upper and lower control limits.
- Open graded warning limits for the 1-inch, 3/8-inch, and No. 4 sieves are 2 percent within the upper and lower control limits. Upper warning limits for the No. 10, No. 40, and No. 200 sieves are 1 percent inside the upper control limit.

B.6.2 Fracture

(1) Test fracture conforming to CMM 8.60. The engineer will waive fractured particle testing on quarried stone.

(2) Maintain a separate fracture control chart for each base aggregate size, source or classification, and type. Set the lower control limit at the contract specification limit, either specified in another special provision or in table 301-2 of standard spec 301.2.4.5. Set the lower warning limit 2 percent above the lower control limit. There are no upper limits.

B.6.3 Liquid Limit and Plasticity

(1) Test the liquid limit and plasticity according to AASHTO T 89 and T 90.

(2) Ensure the material conforms to the limits specified in standard spec table 301-2.

B.7 Corrective Action

B.7.1 General

(1) Consider corrective action when the running average trends toward a warning limit. Take corrective action if an individual test exceeds the contract specification limit. Document all corrective actions both in the project records and on the appropriate control chart.

B.7.2 Placement Corrective Action

(1) Do not blend additional material on the roadbed to correct gradation problems.

(2) Notify the engineer whenever the running average exceeds a warning limit. When 2 consecutive running averages exceed a warning limit, the engineer and contractor will discuss appropriate corrective action. Perform the engineer's recommended corrective action and increase the testing frequency as follows:

- For gradation, increase the QC testing frequency to at least one randomly sampled test per 1000 tons placed.
- For fracture, increase the QC testing frequency to at least one test per gradation test.

(3) If corrective action improves the property in question such that the running average after 4 additional tests is within the warning limits, the contractor may return to the testing frequency specified in B.5.3. If corrective action does not improve the property in question such that the running average after 4 additional individual tests is

still in the warning band, repeat the steps outlined above starting with engineer notification.

(4) If the running average exceeds a control limit, material starting from the first running average exceeding the control limit and ending at the first subsequent running average inside the control limit is nonconforming and subject to pay reduction.

(5) For individual test results significantly outside the control limits, notify the engineer, stop placing base, and suspend other activities that may affect the area in question. The engineer and contractor will jointly review data, data reduction, and data analysis; evaluate sampling and testing procedures; and perform additional testing as required to determine the extent of potentially unacceptable material. The engineer may direct the contractor to remove and replace that material. Individual test results are significantly outside the control limits if meeting one or more of the following criteria:

1. A gradation control limit for the No. 200 sieve is exceeded by more than 3.0 percent.
2. A gradation control limit for any sieve, except the No. 200, is exceeded by more than 5.0 percent.
3. The fracture control limit is exceeded by more than 10.0 percent.

B.8 Department Testing

B.8.1 General

(1) The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all QV and IA personnel for the project, and provide test results to the contractor within 2 business days after the department obtains the sample.

B.8.2 Verification Testing

B.8.2.1 General

(1) The department will have an HTCP technician, or ACT working under a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified in B.2 for contractor testing personnel for each test result being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.

(2) The department will conduct QV tests of each base aggregate size, source or classification, and type during placement conforming to the following:

1. One non-random test on the first day of placement.
2. At least one random test per 30,000 tons, or fraction of 30,000 tons, placed.

(3) The department will sample randomly, at locations independent of the contractor's QC work, collecting one sample at each QV location. The department will collect QV samples after the material has been bladed, mixed, and shaped but before compacting;

except, for 3-inch aggregates, the department will collect samples from the stockpile at load-out. The department will split each sample, test half for QV, and retain half.

(4) The department will conduct QV tests in a separate laboratory and with separate equipment from the contractor's QC tests. The department will use the same methods specified for QC testing.

(5) The department will assess QV results by comparing to the appropriate specification limits. If QV test results conform to the specification, the department will take no further action. If QV test results are nonconforming, add the QV to the QC test results as if it were an additional QC test.

B.8.3 Independent Assurance

(1) Independence assurance is unbiased testing the department performs to evaluate the department's QV and the contractor's QC sampling and testing including personnel qualifications, procedures, and equipment. The department will perform an IA review according to the department's independent assurance program. That review may include one or more of the following:

- Split sample testing.
- Proficiency sample testing.
- Witnessing sampling and testing.
- Test equipment calibration checks.
- Reviewing required worksheets and control charts.
- Requesting that testing personnel perform additional sampling and testing.

(2) If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend placement until action is taken. Resolve disputes as specified in B.9.

B.9 Dispute Resolution

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate sampling and testing procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

(2) Production test results, and results from other process control testing, may be considered when resolving a dispute.

(3) If the project personnel cannot resolve a dispute, and the dispute affects payment or could result in incorporating non-conforming product, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in

error will pay service charges incurred for testing by an independent laboratory. The department may use third party test results to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

C (Vacant)

D (Vacant)

E Payment

(1) Costs for all sampling, testing, and documentation required under this special provision are incidental to this work. If the contractor fails to perform the work required under this special provision, the department may reduce the contractor's pay. The department will administer pay reduction under the non-performance of QMP administrative item.

(2) For material represented by a running average exceeding a control limit, the department will reduce pay by 10 percent of the contract price for the affected Base Aggregate bid items listed in subsection A. The department will administer pay reduction under the Nonconforming QMP Base Aggregate Gradation or Nonconforming QMP Base Aggregate Fracture Administrative items. The department will determine the quantity of nonconforming material as specified in B.7.2.

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56. 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 either type E-3 or E-10 under 460.2; except the engineer will not require the contractor to conform to the quality management program specified under standard spec 460.2.8.

57. Maintaining Drainage.

Maintain drainage at and through worksite during construction in accordance to standard spec 107.22, 204, and 520.

Use existing storm sewer, culvert pipes or existing drainage channels to maintain existing surface and pipe drainage. Pumps may be required to drain the surface and/or pipe/structure discharges during construction. Costs for pumping is considered incidental to storm sewer construction.

Dewatering
If dewatering or pumping is required, treat the water to remove suspended solids before allowing it to enter any waterway or wetland. Filter pumped water through a media such as washed stone or allow settling in a sedimentation basin with sufficient capacity and size to provide an efficient means to filter the water from the dewatering operation before it is discharged back into the waterway or wetland. As part of the Erosion Control Implementation Plan (ECIP) submittal, supply all pertinent information and calculations used to determine the best management practice for dewatering at each location it is required.

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

The cost of all work and materials associated with water treatment and/or dewatering is incidental the Sedimentation Basin item.

58. Sign Post Box Outs.

The labor associated with construction of the 12-inch by 12-inch sign post box outs shown on the plan details for permanent signs will be incidental to the bid items Concrete Sidewalk 5-Inch, Concrete Sidewalk 6-Inch, Concrete Sidewalk 5-Inch Special, HMA Pavement Type E-1, Turf Pavers, and Concrete Median Sloped Nose.

59. 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 utilized on the project. Devices provided for the department use will become department property under the contract.

C Construction

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. Submit the maturity test results to the engineer for approval before proceeding with the next pour using that mix. Develop a new strength/maturity relationship every time the mix changes, when average daily temperature changes by 30º F (17º C) or more, or if engineer verification cylinder strength varies more than 10 percent from the required opening strength when tested at the calibrated opening maturity.

Conform to the department's procedure for developing the strength/maturity relationship, field calibration of the resulting curve, and for all maturity testing. Use a mix-specific datum temperature per Annex A1 of ASTM C1074. Develop data points for the strength/maturity relationship up to 120 percent of the highest required opening strength for each mix design.

For mainline concrete pavement placements, place two probes at the beginning of the day's placement and two probes at the end of the day's placement. Place at least one sensor for each 100 cubic yards (76 m^3) of concrete placed under non-pavement bid items. Place additional probes as the engineer directs at no additional cost to the department. The resulting concrete maturity test data, after engineer verification, will apply to concrete on the same project conforming to the following:

1. The same mix design as the test location.
2. Cured under conditions similar to or move favorable than that of the test location.
3. Placed on or before the time the test location was placed.

Each work week provide a set of 3 verification cylinders to the engineer for each strength/maturity field calibration curve currently in use on the project. The engineer will designate the sampling location for the verification cylinders. Provide 2 cylinders for compressive strength testing and one with a data-encrypted sensor embedded in its center for maturity evaluation. Cast and cure these cylinders on-site as the engineer directs and conforming to the requirements of ASTM 31 for field curing. Deliver them to the

engineer promptly after attaining 50 percent of their opening maturity so the engineer can perform verification testing as closely as possible to the opening maturity level.

D (Vacant)

E Payment
No additional payment will be made by the department for maturity testing.

60. 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
502.0200	Concrete Masonry Bridges HES
502.1100	Concrete Masonry Seal
504.0100	Concrete Masonry Culverts
504.0200	Concrete Masonry Culverts HES
504.0500	Concrete Masonry Retaining Walls
504.0600	Concrete Masonry Retaining Walls HES
504.0900	Concrete Masonry Endwalls

A.2 Concrete Masonry Bridges
Work under the item Concrete Masonry Bridges applies to cast in place concrete for bridge substructures, which includes tunnels, abutments and piers; and cast in place concrete for anchor slabs, walls and parapets on top of tunnel structures. Cast in place concrete for bridge superstructures, which includes bridge decks, raised bridge medians, bridge sidewalks, and bridge parapets, is covered under the special provision item HPC Masonry Superstructures.

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 the contractor will take to control concrete temperature if the concrete temperature at the point of placement exceeds 80° F (27° C). Do not place concrete without the engineer's written acceptance of that temperature control plan. Perform the work as outlined in the temperature control plan.

If the concrete temperature at the point of placement exceeds 90° F (32° C), do not place concrete under the following bid items:

Concrete Masonry Bridges
Concrete Masonry Bridges HES
Concrete Masonry Retaining Walls
Concrete Masonry Retaining Walls HES
Concrete Masonry Culverts
Concrete Masonry Culverts HES
Concrete Masonry Endwalls

Notify the engineer whenever conditions exist that might cause the temperature at the point of placement to exceed 80º F (27º C). If project information is not available, the contractor should obtain information from similar mixes placed for other nearby work.

Any additive or action taken by the contractor to control the temperature of the Concrete Masonry to within the limits of this special provision, including but not limited to the addition of ice to the concrete mix, is considered incidental to the work and will not be measured or paid for separately.

Add the following standard spec 501.3.11:

501.3.11 Slip Forming
Do not place concrete by the slip-form method for any item covered by this special provision.

D (Vacant)

E (Vacant)

61. Storm Sewer Backfill.

Replace standard spec 607.3.5(1) with the following:

(1) Backfill all trenches and excavations, not occupied by slurry backfill, immediately after completing sewer construction as shown in the storm sewer backfill construction details of the plans. Native material shall be selected material from excavation that is free from large lumps, clods, or rock. All other backfill material referenced in the storm sewer backfill construction details shall conform to the standard spec 209.

Replace standard spec 607.5.1(1) with the following:

(1) 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 excavating and wasting excess material, except rock excavation; for providing and removing sheeting and shoring; for forming foundation; for laying pipe; for sealing joints and making connections to new or existing features; for providing granular backfill material, native material, including bedding material; for

backfilling; for cleaning out; and absent the pertinent contract bid items, for restoring the work site.

62. Manhole and Inlet, and Catch Basin Adjusting Rings.

Complete adjustment of manhole, catch basin, and inlet structures in accordance to standard spec 611 and herein provided:

Adjustments of 4-inches or more in height shall be constructed using concrete grade rings. Grade rings less than 2-inches in thickness are not allowed.

63. Storm Sewer.

General
Contractor is responsible to review the Plans, Specifications, and existing site conditions prior to bidding to ascertain the extent of the work requiring ground support systems.

Contractor is to ensure the awareness of the risk involved in constructing sewers in close proximity to existing utilities, structures, and live traffic lanes.

Contractor is responsible for the design, furnishing of materials, installation, monitoring and removal of ground support systems.

Storm Sewer Pipe
The costs for bedding material are included in the contract unit price for each sewer size and no further payment will be made.

Provide rubber gasketed joints and backfill slurry as shown on the plans for all storm sewer pipes.

Rubber Gasket Joint
Place rubber gasket over the spigot end or tongue of the entering pipe. Clean the gasket and the ends of the pipe from sand and gravel. Immediately before making the joint, lubricate the outside of the gasket and the inside of the bell or groove of the last pipe with an approved vegetable lubricant. 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 can order the use of a jack or “come-along” if deemed necessary to ensure that the joints are completely tight.

The costs for rubber gasket joints are included in the contract unit price for each sewer size and no further payment will be made.

Storm Sewer Structures
Use a Grade "A" concrete collar for final adjustment of manhole cover.

Use construction methods that conform to the requirements set forth in standard spec 611.3.3.

The costs for Grade "A" concrete adjustments is included in the contract unit price for each drainage structure and no further payment will be made.

Conform to storm sewer concrete collar detail for all storm sewer pipes to structure connections. Provide backfill slurry for all storm sewer structures as shown on the plans.

Provide a butyl rubber gasket or butyl rubber rope for joints of precast reinforced concrete manhole sections. Butyl Rubber gasket joint used for manholes conforms to 8.41.6 of the Standard Specification for Sewer and Water Construction in Wisconsin, 6th Edition. The costs for butyl rubber joint are included in the contract unit price for each manhole and no further payment will be made.

Utilities
Supporting utilities in storm sewer trench is considered incidental to storm sewer pipe.

64. Traffic Signals, General.

All work shall be in accordance to the plans and the State of Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction, 2013 Edition, and these special provisions.

State Owned Traffic Signals
Work under this item shall consist of furnishing and installing all materials, except for the traffic signal cabinet, for the department owned traffic signals at the intersections of STH 100 with USH 18 (W. Bluemound Road), W. Wisconsin Avenue, W. Research Drive/W. Potter Road, and W. Watertown Plank Road in the City of Wauwatosa, WI. The contractor will be responsible for installing the traffic signal cabinet, but the cabinet itself will be supplied by a third party vendor as detailed in the *Install Vendor Supplied Traffic Signal Cabinet* specification.

City of Wauwatosa Owned Traffic Signals
Work under this item shall consist of furnishing and installing all materials included in the plans for the City of Wauwatosa owned traffic signal at the intersection of Watertown Plank Road and Innovation Drive in the City of Wauwatosa, WI. The installation includes the construction of underground and limited above ground equipment for the west and south legs of the intersection. All other work associated with this traffic signal will be constructed during future construction projects. Contractor shall obtain the necessary electrical permits from the City of Wauwatosa Building Department prior to beginning the work. The contractor is responsible for any fines, penalties, damage done to property, etc., billed by the City of Wauwatosa. Contractor shall stake the proposed locations of traffic signal items and notify the City of Wauwatosa Public Works Department at (414) 471-8422 at least 10 days prior to starting work so that the locations of the proposed facilities can be approved by the City of Wauwatosa. Any field changes regarding the location of the signal poles, pull boxes, etc. shall be approved by the City of Wauwatosa.

65. Landscape Planting Surveillance and Care Cycles.

Amend standard spec 632.3.19.1 (2) to include the following:

Proper care of plants consists of watering, weeding, cultivating, mowing perennials in early November, removing mowing debris, pruning, spraying, tightening braces and guys, retying wrapping, re-mulching, and other work necessary to keep plants and planting beds in a neat appearance. Between May 15 and October 15 care shall be provided for two years after completion of plant installation and acceptance. Planting surveillance care cycles shall be performed once every two weeks. Care cycle length may be extended beyond 14 days if weather conditions and soil moisture allow.

Amend standard spec 632.3.19.2 to include the following:

If the care specialist fails to perform any of the required care-cycles as specified in standard spec 632.3.19.1, the department will assess daily damages in the amount of $1,000 per day to cover the cost of performing the work with other forces.

66. 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.

Modify standard spec 637.2.4 with the following:

Use stainless steel bolts, washers and nuts for type I and II signs mounted on sign bridges or type I signs mounted on overhead sign supports. Use clips on every joint for Sign Plate A 4-6 when mounted on a sign bridge or overhead sign support. Inspect installation of clips and assure bolts and nuts are tightened to manufacturers recommended torque values.

Use aluminum vertical sign support beams that have a 5-inch wide flange and weigh 3.7 pounds per foot, if the L-brackets are 4 inches wide then use 4 inch wide flange beams weighing 3.06 pounds per foot. Contractor shall measure the width of the L-brackets on existing structures of determine the width needed for sign support beams.

Use beams a minimum of 6 feet in length or equal to the height of the sign to be supported, whichever is greater. Use U-bolts that are made of stainless steel, 1/2 inch diameter and of the proper size to fit the truss cords of each sign bridge. Install vertical sign support beams on each sign and use new U-bolts to attach each beam to the top and bottom cord of the sign bridge truss.

For type II signs on overhead sign supports follow the approved product list for mounting brackets.

Replace standard spec 637.2.4.1(2)2 s with the following:

Clips may be either stainless steel or ASTM B 108, aluminum alloy, 356.0-T6.

Append standard spec 637.3.2.1(3) with the following:

Provide the engineer with 3 copies of drawings of the signs proposed to be furnished under this contract for approval.

Append standard spec 637.3.3.2(2) with the following:

Install type I Signs at the offset stated in the plan, which shall be the clear distance between the edge of mainline pavement right edgeline and the near edge of the sign.

Append standard spec 637.3.3.3(3) with the following:

Furnish and install new aluminum vertical sign support beams on each sign and new U-bolts to attach each beam to the top and bottom cord of the sign bridge truss for type I or type II signs and type I signs on overhead sign supports incidental to sign.

67. Field Facilities.

Replace standard spec 642 with the following:

The department has procured its own Field Facilities located at 2424 S. 102nd Street; West Allis, WI 53227.

68. General Requirements for Electrical Work.

Append standard spec 651.3.3 (3) with the following:

Notify the department's Electrical Field Unit at (414) 266-1170 and the City of Wauwatosa Public Works Department at (414) 471-8422 to coordinate the inspection. The department's Region Electrical personnel will perform the inspection for the state owned and maintained traffic signals and the City of Wauwatosa will perform the inspection for the municipal owned traffic signal.

69. Roadway Lighting Systems.

The following modifications are made to standard specifications and standard detail drawings:

Append standard spec 651.3.1 with the following:

Each electrical worker is responsible for his own protection from automatic switching and from switching by others. Conform to lock-out and tag-out rules that apply in the industry. Sign and date the tags and include the name of the contractor. If possible, clear lock-outs and tag-outs by the end of the work day. If not possible, notify the engineer.

The plans show required disconnections of existing lighting circuits, most in the form of abandoning existing underground conductors in place. The contractor may need to mobilize several times per each existing lighting distribution center. The contractor is expected to build these costs into the various paid items for removals and installations.

Append standard spec 651.5 with the following:

Work to disconnect and connect conductors will be incidental to the paid measurement of footage.

There will be no measurement for payment for abandoning conductors or removing conductors for scrap.

Work to disconnect and connect electrical system, splice through, or to connect conductors are incidental to the installation or removal of the lighting pay items included in this contract. The department will not measure conductors or conduits that have been abandoned in place or removing them for scrap. The department will allow, at the contractor's discretion, for the salvaging of conductors to be abandoned, if possible.

Append standard spec 652.3.1 with the following:

Installed minimum 3-inch diameter PVC conduit elbows in a ground mounted concrete bases to accommodate Cable in Duct (CID) type cable.

Append standard spec 652.3.1.2 with the following:

Furnish and install an UL-listed liquidtight flexible metallic conduit transition wherever a conduit exits from below grade.

Furnish a UL-listed fitting appropriate for the purpose at each transition from one type of conduit to another type. Couplings will not be individually measured for payment.

Append standard spec 652.3.1.4 with the following:

Support conductors at the top of the vertical raceway or as close as practical if the vertical rise exceeds 50-feet. Provide additional supports as shown; in no case shall the distance between supports exceed that shown in Table 300.19(A) of the National Electrical Code.

Append standard spec 655.3.1(1) and 655.3.7(3) with the following:

Wet location splices may be allowed under the following circumstances:
Where shown in the plans.
Where the best available location to connect new work to existing work below grade.

Make wet location splices with an approved epoxy kit.

Append standard spec 655.3.7(4) with the following:

Provide an approved secondary in line 600-volt AC fuse assembly with a FNQ 5 ampere fuses in the luminaire and provide No. 12 AWG, XLP wire in the pole shaft from fuses in the luminaire to underground feeder with splice at pole base. No. 12 AWG, XLP wire will be paid separately. Fuses are included in electrical wire bid items.

Where two or more cable networks occupy the same pull box, manhole, etc., bundle and tag each circuit network (i.e. A/B/N and C/D/N) with approved all-weather tags.

At each pull point or access point, indicate the line side bundle with a lap of blue tape. *Exception:* Where the direction the bundle comes from is obvious, the lap of blue tape is not required. *Example of exception:* a bridge parapet junction box.

Append standard spec 657.2.1(2) with the following:

For non-breakaway poles (mounted on structure, concrete base or behind noise wall barriers without transformer base), as well as at stems of sign bridges containing electrical wires, to be double nutted and contractor to install galvanized rat screen enclosing the bottom of pole area, extra nuts and screen incidental.

Modify standard spec 657.3.1(3) with the following:

Use corrosion protection measures for breakaway transformer bases and aluminum light poles for installation on lighting systems.

70. Electrical Service Meter Breaker Pedestal.

Append standard spec 656.2.3 with the following:

The department will be responsible for the electric 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.

Electric utility company service installation and energy cost will be billed to and paid for by the maintaining authority.

Install the cabinet base and meter breaker pedestal first, so the electric utility company can install the service lateral. 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 electric utility company.

Append standard spec 656.5(3) with the following:

Payment for grading the service trench, replacing topsoil, fertilizer, seed, and mulch will be incidental to this work unless the bid items are in the contract and then they will be paid for at the contract price.

71. Traffic Signal Mounting Hardware.

Replace standard spec 658.2.1 (2) with the following:

Use an approved type of pole or standard vertical mounting brackets/clamps for signal faces from an approved manufacturer. Pedestrian traffic signal heads mounted in the median shall use federal yellow aluminum side of pole 2-way upper and lower arm assemblies providing 16 ½-inch center to center spacing.

72. Pedestrian Signal Face 16-Inch.

Append standard spec 658.2.3.2(1) with the following:

The contractor shall furnish 16 inch LED ready pedestrian signal housing, drilled for top/bottom pipe mount with the ability to rotate 270 degrees on poly mounting bracket.

Append standard spec 658.3.4 with the following:

Connect all ungrounded conductors with wire nuts in the appropriate sections of the signal heads, when directed by WisDOT personnel. 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.

73. Pedestrian Push Buttons.

Append standard spec 658.2.5 with the following:

The contractor shall furnish vandal resistant, pressure activated, pedestrian push buttons, with die cast body type, in unfinished aluminum or yellow. Button constructed shall be constructed of stainless steel, with a Piezo driven solid state switch, momentary LED display and beeper that sounds simultaneously with button push.

The contractor shall furnish low profile, unfinished cast aluminum, vandal resistant, and flush mounting pole mount.

The contractor shall 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.

74. Traffic Signal Faces.

Append standard spec 658.3.2 with the following:

Connect all ungrounded conductors with wire nuts in the appropriate sections of the signal heads, when directed by WisDOT personnel. 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.

75. Temporary Traffic Signals for Intersections.

Append standard spec 661.2.1 with the following:

(1) The contractor shall furnish all temporary traffic signal equipment as shown on the plan. The signal controller shall be capable of operating with the video camera detection system, Emergency Vehicle Preemption (EVP) system, and closed loop traffic signal interconnect system. All wood poles shall be plumb and level. Provide primary and secondary temporary traffic signal contact names and phone numbers who will be responsible for implementing temporary traffic signal timing changes. The department may request traffic signal timing changes to an approved incident timing plan during the project. The contractor shall be responsible for implementing the approved incident timing plan immediately upon notification of the change and immediately upon notification of switching the timing plan back to normal operation. The contractor shall record the times of operation of the incident timing and subsequent return to normal operation and provide this information to the department.

(3) The department has initiated the installation of the temporary electrical service with the electrical utility at the intersections of STH 100 with USH 18, W. Wisconsin Avenue, W. Potter Road/W. Research Drive, and W. Watertown Plank Road and the intersection of USH 45 southbound Ramps and W. North Avenue to expedite the process. Contact Denice Lucente at (262) 548-6717 to coordinate the temporary electrical service. The department will pay for all installation and Energy Costs associated with the operation of the Temporary Traffic Signal. It is the contractor's responsibility to contact the electrical utility and arrange timely installation of the temporary service.

(5) Furnish a video image detector system consisting of video image detector cameras, mounting brackets and hardware, power cable, video image processor card, and auxiliary equipment to make the video detector system fully operational.

(6) Furnish spread spectrum radio antenna(s), 12dB Gain, Yagi as shown in the plans. The antenna shall be a 12 dB gain directional antenna. It shall be supplied with a pigtail for connection to the antenna cable. The pigtail shall be pre-terminated with a connector compatible with the antenna cable. Mast brackets shall be recommended by the antenna

manufacturer. Mounting brackets shall be supplied complete with all associated U-bolts and other hardware to secure the antenna to the mast.

(7) Furnish spread spectrum radio assembly, shelf mount as shown in the plans. The radio shall be a spread spectrum radio with the following features: frequency hopping technology; up to 115,000 bits per second sustained throughput; 1-mile minimum range; built-in set up and diagnostic capabilities; forward error correction with 16-bit CSC; variable transmitter power, up to 1 Watt; suitable for both point-to-point and multipoint networks; configurable with respect to frequency groups and hop patterns; EIA-232 interface to equipment; 902-928 MHz operating frequency band; 62 hop patterns; 139 RF channels; 32-bit encryption; receiver sensitivity of -110 dB with a bit error rate of 10-6 or better; system gain of 152 dBm; RP TNC-F antenna port; operating temperature range: -40 to +80 degrees C; enclosure volume under 100 cubic inches; aluminum enclosure; integral signal strength indicator for antenna aiming; indicators for transmit data, receive data, received signal strength, and power. The radio shall be supplied with the manufacturer's set-up software. A Polyphaser Model RA 702 lightning protector shall be supplied for the antenna cable connection. A shielded EIA-232 patch cable shall be supplied to connect the radio to the traffic signal controller in the same cabinet. The patch cable shall be nominally 5 feet in length, and shall be pre-terminated with connectors compatible with the mating device ports.

(8) Furnish 1/2-inch spread spectrum radio antenna cable between the radio or power divider and the antenna. Provide connectors and terminate the cable at each end. On wood poles, enclose the entire length of the cable in rigid metallic conduit. At steel poles and sign structures, run the cable inside the pole and through the traffic signal conduit system. If it is not practical to run the antenna cable inside the sign structure, then enclose the entire length of the cable in rigid and flexible metallic conduit. Use connectors matching those on the associated radio and antenna.

Append standard spec 661.3.1 with the following:

(3) The engineer will not grant turn on approval until the contractor corrects all discrepancies. The temporary traffic signal at the intersection of USH 45 southbound Ramps and W. North Avenue shall be in flash for 3 working days (excluding Holidays, Saturday and Sunday) prior to the implementation of the first timing plan. The mainline (W. North Avenue) will be flashing yellow and the left turns will be flashing red. The DOT signal engineer, (414) 750-2605, shall determine the turn on and turn off date and time. The operation shall coincide with Stages 3A, 3B, 3C, and 4. Coordinate with the DOT electrical field unit at (414) 266-1170 in scheduling a turn on date.

(4) Install temporary video detection cameras at the locations shown on the plans and according to the manufacturer's recommendations at a minimum 30-foot mounting height. Install power cable and signal cabinet equipment. Aim the video cameras to provide detection at the location shown on the plans and make the video detector system fully operational.

(5) In the event, at installation or turn on date, a noticeable obstruction is present in line with the video detection zone(s), the contractor shall be obligated to advise the engineer before setting the zone.

(6) The video camera shall be mounted on a wooden pole. It shall be the contractor's responsibility to relocate the video camera to a suitable location if there is impedance on the sensor operation, construction related or otherwise.

(7) The video detection system, as shown in the traffic signal construction plans, shall be complete, in place, tested, and in full operation during each stage and sub-stage of construction.

(8) Secure the spread spectrum radio antenna(s), 12dB Gain, Yagi to the mast using the mounting hardware. Install the antenna near the top of the mast. Connect the antenna pigtail to the antenna cable and seal the connection using methods and materials recommended by the radio manufacturer. Use lag screws for mounting to a wood pole, or stainless steel bands for mounting to a steel pole or sign structure. Aim the antenna at the matching antenna at the next intersection to be interconnected. Use the signal strength indicator on the radio to find the optimum position.

(9) Use the spread spectrum radio assembly, shelf mount manufacturer's set-up software to configure the radio for its intended use. Following installation of the spread spectrum radio assembly, power divider (if required at this location), antennas, and cables, perform the following tests: V.S.W.R test from the connection at the radio, with a fully configured antenna system (antenna, cable, and all connections). The V.S.W.R. shall not exceed 1.5:1 at 900 MHz; perform a Bit error rate test. Test at 5600 bps from the radio to the matching radio shown on the block diagram in the plans. Test for 4 hours at a 2048 bit pattern. The contractor shall provide a hard copy output of results of each test to the engineer. The maximum error rate shall be 1 erroneous bit every 106 bits. Bond the surge protector to the cabinet grounding system.

(10) Install the spread spectrum radio antenna cable and make all connections. Do not violate the minimum bend radius of the cable, which is 5 inches. Make the antenna cable shield electrically and mechanically secure to form a direct DC ground path. The antenna shield shall remain at the same electrical potential as the antenna mounting mast. Perform a Metallic Time Domain Reflectometer (MTDR) test on the installed cable. The antenna cable shall not exhibit any discontinuities such as opens, shorts, crimps, or defects.

(11) The spread spectrum antenna, spread spectrum radio and spread spectrum radio antenna cable, as shown in the traffic signal construction plans, shall be complete, in place, tested, and in full operation during each stage and sub-stage of construction.

Append standard spec 661.3.1.1 with the following:

(2) Place the pole in the ground to no less than 1/5 of the pole's length as the plans show. Sawcut existing pavement and concrete curb and gutter as needed to install the wood

poles and guy wire anchors. Sawcut existing pavement in accordance to the pertinent provisions in Section 690.3, Construction. Remove pavement and concrete curb and gutter as shown on the plans and if needed to install the wood poles and guy wire anchors. Remove only as much pavement as needed to install the wood poles. Remove pavement and curb and gutter in accordance to the pertinent provisions in Section 204.3, Construction. The contractor shall be responsible for holding any wood poles in place and/or moving wood poles during construction due to conflicts with proposed work.

Append standard spec 661.3.1.4 with the following:

(1) Arrange for bi-weekly inspections with the engineer to check the height of the span wire above the roadways to ensure that the bottom of the traffic signal heads remain within the minimum and maximum heights allowed above the roadway. Make all height adjustments within 1-hour of an inspection indicating that adjustments are required. Notify the engineer in writing upon completion of all necessary adjustments. Maintain a written log to properly document the date of each monthly inspection, the heights above the roadway, the roadway clearance after adjustments have been made and acceptance by the engineer. The contractor shall provide all documentation related to the monthly span wire height checks as well as all records related to maintenance performed on the temporary traffic signal installations to the engineer prior to surrendering the temporary traffic signals.

(4) Maintain all temporary vehicle detection zones as the plans show or as the engineer directs. The temporary vehicle detection zones shall be set near the vicinity and within the approximate distance from the stop bar as shown on the plans. The contractor shall check temporary vehicle detection zones on a bi-weekly basis and at the opening of each stage of temporary traffic signal operation to ensure that they are working and are aimed properly. Periodic adjustment of the detection zones and/or moving of the temporary vehicle detection sensors may be required due to changes in traffic control, staging, or other construction operations.

Ensure that the temporary vehicular detection system stays in clean working order. Periodic cleaning of the equipment may be required due to dirt and dust build-up.

Append standard spec 661.3.2.6 with the following:

(6) Remove the video detection system, spread spectrum antenna, spread spectrum radio, and spread spectrum radio cable from the temporary traffic signal poles and cabinet.

Append standard spec 661.5 with the following:

(2) Payment for the Temporary Traffic Signals for Intersections bid item is full compensation for providing, operating, maintaining, and repairing the complete temporary installation; and for removal. Payment also includes the following:

1. Furnishing and installing the replacement equipment.
2. The cost of delivery and pick-up of the cabinet assemblies.
3. Removal of service and site restoration.

Payment is full compensation for drilling holes; furnishing and installing all materials, including bricks, and coarse aggregate; for excavation, bedding, and backfilling, including any sand or other required materials; furnishing and placing topsoil, fertilizer, seed, and mulch in disturbed areas; for properly disposing of surplus materials; for making inspections; for checking and/or adjusting the temporary detection zones on a bi-weekly basis; for maintaining and changing the temporary detection zones to match the plans, traffic control, and construction staging; for relocating the temporary detection sensors due to construction activities, if required; for periodically cleaning all temporary vehicle detector equipment; for removing the temporary vehicle detector system; for removing the spread spectrum antenna, radio, cable, and other associated equipment; for cleaning up and properly disposing of waste; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

76. Temporary Traffic Signals for Intersections Left in Place.

Append standard spec 661.1 with the following:

(1) This section describes furnishing, installing, maintaining, and surrendering temporary traffic signals. The complete temporary traffic signal installation at the intersection of STH 100 and IH94 westbound Ramps shall be surrendered to the contractor for Project 1060-33-75 and the temporary traffic signal installation at the Watertown Plank Road and Innovation Drive intersection shall be surrendered to the contractor for Project 1060-33-72. The contractor shall provide all documentation related to the monthly span wire height checks as well as all records related to maintenance performed on the temporary traffic signal installations to the engineer prior to surrendering the temporary traffic signals.

Append standard spec 661.2.1 with the following:

(1) The contractor shall furnish all temporary traffic signal equipment as shown on the plan. The signal controller shall be capable of operating with the video camera detection system, Emergency Vehicle Preemption (EVP) system, and closed loop traffic signal interconnect system. All wood poles shall be plumb and level. Provide primary and secondary temporary traffic signal contact names and phone numbers who will be responsible for implementing temporary traffic signal timing changes. The department may request traffic signal timing changes to an approved incident timing plan during the project. The contractor shall be responsible for implementing the approved incident timing plan immediately upon notification of the change and immediately upon notification of switching the timing plan back to normal operation. The contractor shall record the times of operation of the incident timing and subsequent return to normal operation and provide this information to the department.

(3) Furnish and install the temporary electrical service for temporary traffic signals at the intersection of W. Watertown Plank Road and Innovation Drive according to the requirements of the applicable electrical utility. Provide an affidavit to the electrical utility in a timely manner so the electrical utility can schedule service turn on. If the control cabinet is not mounted on the electrical service pole, add a second electrical service disconnect to the outside of the control cabinet for the convenience of emergency personnel. If required, install the electrical service.

The department has initiated the installation of the temporary electrical service with the electrical utility at the intersection of STH 100 and IH 94 westbound Ramps to expedite the process. The electrical utility has been made aware that the temporary electrical service will be in operation over multiple construction seasons and they are designing the appropriate service type. Contact Denice Lucente at (262) 548-6717 to coordinate the temporary electrical service with the department. The department will pay for all installation and Energy Costs associated with the operation of the Temporary Traffic Signal. It is the contractor's responsibility to contact the electrical utility and arrange timely installation of the temporary service.

(4) Furnish only new equipment and materials for the temporary traffic signal installation. Used equipment shall not be used due to the multi-year duration of the temporary traffic signal installation. All equipment shall be furnished in accordance to the pertinent provisions in standard spec 657, 658, 659 and 661.

Furnish new traffic signal faces and backplates in accordance to the pertinent provisions in standard spec 658.2. The traffic signal faces shall be listed on the "*Wisconsin Department of Transportation Qualified Electrical Products"* list. Vehicular signal indications shall be 12-inch LED modules, give an appearance of an incandescent lamp and conform to the latest version of ITE-VTCSH.

Furnish new luminaires in accordance to the pertinent provisions in standard spec 659.2. The luminaires shall be listed on the "*Wisconsin Department of Transportation Qualified Electrical Products"* list.

(5) Furnish a video image detector system consisting of video image detector cameras, mounting brackets and hardware, power cable, video image processor card, and auxiliary equipment to make the video detector system fully operational.

(6) Furnish spread spectrum radio antenna(s), 12dB Gain, Yagi as shown in the plans. The antenna shall be a 12 dB gain directional antenna. It shall be supplied with a pigtail for connection to the antenna cable. The pigtail shall be pre-terminated with a connector compatible with the antenna cable. Mast brackets shall be recommended by the antenna manufacturer. Mounting brackets shall be supplied complete with all associated U-bolts and other hardware to secure the antenna to the mast.

(7) Furnish spread spectrum radio assembly, shelf mount as shown in the plans. The radio shall be a spread spectrum radio with the following features: frequency hopping technology; up to 115,000 bits per second sustained throughput; 1-mile minimum range; built-in set up and diagnostic capabilities; forward error correction with 16-bit CSC; variable transmitter power, up to 1 Watt; suitable for both point-to-point and multipoint networks; configurable with respect to frequency groups and hop patterns; EIA-232 interface to equipment; 902-928 MHz operating frequency band; 62 hop patterns; 139 RF channels; 32-bit encryption; receiver sensitivity of -110 dB with a bit error rate of 10-6 or better; system gain of 152 dBm; RP TNC-F antenna port; operating temperature range: -40 to +80 degrees C; enclosure volume under 100 cubic inches; aluminum enclosure; integral signal strength indicator for antenna aiming; indicators for transmit data, receive data, received signal strength, and power. The radio shall be supplied with the manufacturer's set-up software. A Polyphaser Model RA 702 lightning protector shall be supplied for the antenna cable connection. A shielded EIA-232 patch cable shall be supplied to connect the radio to the traffic signal controller in the same cabinet. The patch cable shall be nominally 5 feet in length, and shall be pre-terminated with connectors compatible with the mating device ports.

(8) Furnish 1/2-inch spread spectrum radio antenna cable between the radio or power divider and the antenna. Provide connectors and terminate the cable at each end. On wood poles, enclose the entire length of the cable in rigid metallic conduit. At steel poles and sign structures, run the cable inside the pole and through the traffic signal conduit system. If it is not practical to run the antenna cable inside the sign structure, then enclose the entire length of the cable in rigid and flexible metallic conduit. Use connectors matching those on the associated radio and antenna.

Append standard spec 661.3.1 with the following:

(4) Install temporary video detection cameras at the locations shown on the plans and according to the manufacturer's recommendations at a minimum 30-foot mounting height. Install power cable and signal cabinet equipment. Aim the video cameras to provide detection at the location shown on the plans and make the video detector system fully operational.

(5) In the event, at installation or turn on date, a noticeable obstruction is present in line with the video detection zone(s), the contractor shall be obligated to advise the engineer before setting the zone.

(6) The video camera shall be mounted on a wooden pole. It shall be the contractor's responsibility to relocate the video camera to a suitable location if there is impedance on the sensor operation, construction related or otherwise.

(7) The video detection system, as shown in the traffic signal construction plans, shall be complete, in place, tested, and in full operation during each stage and sub-stage of construction.

(8) Secure the spread spectrum radio antenna(s), 12dB Gain, Yagi to the mast using the mounting hardware. Install the antenna near the top of the mast. Connect the antenna pigtail to the antenna cable and seal the connection using methods and materials recommended by the radio manufacturer. Use lag screws for mounting to a wood pole, or stainless steel bands for mounting to a steel pole or sign structure. Aim the antenna at the matching antenna at the next intersection to be interconnected. Use the signal strength indicator on the radio to find the optimum position.

(9) Use the spread spectrum radio assembly, shelf mount manufacturer's set-up software to configure the radio for its intended use. Following installation of the spread spectrum radio assembly, power divider (if required at this location), antennas, and cables, perform the following tests: V.S.W.R test from the connection at the radio, with a fully configured antenna system (antenna, cable, and all connections). The V.S.W.R. shall not exceed 1.5:1 at 900 MHz; perform a Bit error rate test. Test at 5600 bps from the radio to the matching radio shown on the block diagram in the plans. Test for 4 hours at a 2048 bit pattern. The contractor shall provide a hard copy output of results of each test to the engineer. The maximum error rate shall be 1 erroneous bit every 106 bits. Bond the surge protector to the cabinet grounding system.

(10) Install the spread spectrum radio antenna cable and make all connections. Do not violate the minimum bend radius of the cable, which is 5 inches. Make the antenna cable shield electrically and mechanically secure to form a direct DC ground path. The antenna shield shall remain at the same electrical potential as the antenna mounting mast. Perform a Metallic Time Domain Reflectometer (MTDR) test on the installed cable. The antenna cable shall not exhibit any discontinuities such as opens, shorts, crimps, or defects.

(11) The spread spectrum antenna, spread spectrum radio and spread spectrum radio antenna cable, as shown in the traffic signal construction plans, shall be complete, in place, tested, and in full operation during each stage and sub-stage of construction.

Append standard spec 661.3.1.1 with the following:

(2) Place the pole in the ground to no less than 1/5 of the pole's length as the plans show. Sawcut existing pavement and concrete curb and gutter as needed to install the wood poles and guy wire anchors. Sawcut existing pavement in accordance to the pertinent provisions in standard spec 690.3, Construction. Remove pavement and concrete curb and gutter as shown on the plans and if needed to install the wood poles and guy wire anchors. Remove only as much pavement as needed to install the wood poles. Remove pavement and curb and gutter in accordance to the pertinent provisions in standard spec 204.3, Construction. The contractor shall be responsible for holding any wood poles in place and/or moving wood poles during construction due to conflicts with proposed work.

Append standard spec 661.3.1.4 with the following:

(1) Arrange for bi-weekly inspections with the engineer to check the height of the span wire above the roadways to ensure that the bottom of the traffic signal heads remain within the minimum and maximum heights allowed above the roadway. Make all height adjustments within 1-hour of an inspection indicating that adjustments are required. Notify the engineer in writing upon completion of all necessary adjustments. Maintain a written log to properly document the date of each monthly inspection, the heights above the roadway, the roadway clearance after adjustments have been made and acceptance by the engineer. The contractor shall provide all documentation related to the monthly span wire height checks as well as all records related to maintenance performed on the temporary traffic signal installations to the engineer prior to surrendering the temporary traffic signals.

(4) Maintain all temporary vehicle detection zones as the plans show or as the engineer directs. The temporary vehicle detection zones shall be set near the vicinity and within the approximate distance from the stop bar as shown on the plans. The contractor shall check temporary vehicle detection zones on a bi-weekly basis and at the opening of each stage of temporary traffic signal operation to ensure that they are working and are aimed properly. Periodic adjustment of the detection zones and/or moving of the temporary vehicle detection sensors may be required due to changes in traffic control, staging, or other construction operations.

Ensure that the temporary vehicular detection system stays in clean working order. Periodic cleaning of the equipment may be required due to dirt and dust build-up.

Append standard spec 661.3.2.6 with the following:

(6) Remove the video detection system, spread spectrum antenna, spread spectrum radio, and spread spectrum radio cable from the temporary traffic signal poles and cabinet.

Replace standard spec 661.3.2.6 with the following:

(1) Before activating the temporary traffic signal or temporary ramp meter, verify the signal indications and operation of the signal to the engineer.

(2) At the completion of the project, the contractor for Project 1060-33-75 or 1060-33-72 shall have the opportunity to inspect the temporary traffic signal installations for defects and deficiencies. It shall be the contractor's responsibility to correct any defects or deficiencies prior to surrendering the temporary traffic signals to the appropriate contractor.

(3) Surrender the temporary traffic signal installation, including temporary video detection system and spread spectrum antenna, radio, cables and all other associated equipment, at the intersection of STH 100 and IH94 westbound Ramps to the contractor for Project 1060-33-75. Surrender the temporary traffic signal installation, including temporary

video detection system and spread spectrum antenna, radio, cables and all other associated equipment, at the Watertown Plank Road and Innovation Drive intersection to the contractor for Project 1060-33-72 after all defects or deficiencies have been corrected.

Append standard spec 661.5 with the following:

(2) Payment for the Temporary Traffic Signals for Intersections bid item is full compensation for providing, operating, maintaining, and repairing the complete temporary installation. Payment also includes the following:

1. Furnishing and installing the replacement equipment.
2. All utility charges for installation, disconnection, and energy service through project completion at the intersection of W. Watertown Plank Road and Innovation Drive.
3. The cost of delivery and pick-up of the cabinet assemblies.
4. Surrendering all equipment to the appropriate contractor after project completion.

Payment is full compensation for drilling holes; furnishing and installing all materials, including bricks, and coarse aggregate; for excavation, bedding, and backfilling, including any sand or other required materials; furnishing and placing topsoil, fertilizer, seed, and mulch in disturbed areas; temporary electrical service utility costs for the intersection of W. Watertown Plank Road and Innovation Drive; for properly disposing of surplus materials; for making inspections; for checking and/or adjusting the temporary detection zones on a bi-weekly basis; for maintaining and changing the temporary detection zones to match the plans, traffic control, and construction staging; for relocating the temporary detection sensors due to construction activities, if required; for periodically cleaning all temporary vehicle detector equipment; for surrendering the complete temporary traffic signal installation; and for cleaning up and properly disposing of waste.

77. Intelligent Transportation Systems – Schedule.

Install Temporary Traffic Camera System at Bluemound Road and Watertown Plank Road prior to taking existing cameras out of service.

Maintain normal freeway ramp meter operations at all times.

Limit EXCCTV-40-0007 down time to 24 hours during communication modification shown on plans.

78. Intelligent Transportation Systems (ITS) – Control of Materials.

Standard spec 106.2 – Supply Source and Quality
Supplement standard spec 106.2 with the following:

The department will furnish a portion of equipment to be installed by the contractor. This department-furnished equipment includes the following:

Department-furnished Items
2070 Controller Ramp Meter Processor Assembly
Dome Camera
30-Foot Camera Pole
Microwave Vehicle Detectors
Microwave Vehicle Detectors Loop Emulation Card
Ethernet Video Encoder
Ethernet Switch
ITS Field Cabinet

Pick-up small department-furnished equipment, such as communications devices, cameras, and controllers, from the department's Statewide Traffic Operations Center (STOC), 433 W. St. Paul Ave., Milwaukee, WI 53203 at a mutually agreed upon time during normal state office hours. Contact the department's STOC at (414) 227-2166 to coordinate pick-up of equipment.

Large department-furnished equipment, such as camera poles will be delivered by the supplier to a contractor-controlled site within Milwaukee County. Delivery will not necessarily be in a "just in time" manner. Store the equipment until field installation. Provide location details and a contact for delivery coordination upon receiving the contract's Notice to Proceed.

Transportation of the equipment between the electric shop and the field or interim location(s) shall be the responsibility of the contractor.

Standard spec 106.3 – Approval of Materials
Supplement standard spec 106.3 with the following:

Design/Shop Drawings
Prior to the purchase and/or fabrication of any of the components listed herein, and for any non-catalog item shown on the Material and Equipment List specified above, and no more than 30 days after notice to proceed, submit five copies of design drawings and shop drawings, as required, to the department for review. The items and the drawings that represent them shall meet the requirements of the standard specifications.

Design drawing submissions shall consist of signed and certified designs, design drawings, calculations, and material specifications for required items.

Shop drawings will be required for, but not limited to the following:

- Mounting assemblies for the vehicle speed and classification sensors, including their attachment to the structure.
- Mounting LED warning signs to the sign structure.
- Mounting detail for dynamic message signs.
- Any contractor-designed structure or foundation.

The department will complete its review of the material within 30 days from the date of receipt of the submission, unless otherwise specified. The department will advise the contractor, in writing, as to the acceptability of the material submitted. The department may determine that if no exceptions were taken for the item, it is approved, and no further action is required by the contractor; or the item may be partially or totally rejected, in which case modify and/or amend the submittal as required by the department and resubmit the item within 14 days. At this time, the review and approval cycle described above will begin again.
670-005 (20100709)

79. Intelligent Transportation Systems – General Requirements.

A Description

A.1 General

This contract includes furnishing and installing elements for an Intelligent Transportation System (ITS) in or along the existing roadway as shown on the plans.

Unusual aspects of this project include:

- 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.
- The department will furnish some of the equipment to be installed. Make a reasonable effort to discover defects in that equipment prior to installing it.

A.2 Surge Protection

Equip every ungrounded conductor wire entering or leaving any equipment cabinet with a surge protector. For purposes of this section, multiple cabinets on a single pole or foundation are considered a single cabinet.

B Materials

B.1 General

Only furnish equipment and component parts for this work that are new and have high quality workmanship. All controls, indicators, and connectors shall be clearly and permanently labeled in a manner approved by the engineer. All equipment of each type shall be identical.

All electrical equipment shall conform to the standards and requirements of the Wisconsin Electrical Code, the National Electrical Manufacturers Association (NEMA), National Electric Safety Council (NESC), Underwriter's Laboratory Inc. (UL) or the Electronic Industries Association (EIA), when applicable. All materials and workmanship shall conform to the requirements of the National Electrical Code (NEC), Rural Electrification Administration (REA), Standards of the American Society for Testing and

Materials (ASTM), American Association of State Highway and Transportation Officials (AASHTO), requirements of the plans these special provisions, the standard specifications, and to any other codes, standards, or ordinances that may apply. All system wiring, conduit, grounding hardware and circuit breakers shall be in conformance with the National Electrical Code. Whenever reference is made to any of the standards mentioned, the reference shall be considered to mean the code, ordinance, or standard that is in effect at the time of the bid advertisement.

B.2 Outdoor Equipment

All conductive connectors, pins (except pins connected by soldering), and socket contacts shall be gold plated. Acrylic conformal coating shall protect each circuit board side that has conductive traces. Except for integrated circuits containing custom firmware, all components shall be soldered to the printed circuit board.

To prevent galvanic corrosion, all connections between dissimilar metals shall incorporate a means of keeping moisture out of the connection. Where the connection need not conduct electricity, interpose a non-absorbing, inert material or washer between the dissimilar metals. Use nonconductive liners and washers to insulate fasteners from dissimilar metals. Where the connection must conduct electricity, use a conductive sealant between the dissimilar metals. Alternatively, use an insulating gasket and a bond wire connecting the two metal parts.

B.3 Custom Equipment

Equipment that is not part of the manufacturer's standard product line, or that is made or modified specifically for this project, shall conform to the following requirements:

Where practical, electronics shall be modular plug-in assemblies to facilitate maintenance. Such assemblies shall be keyed to prevent incorrect insertion of modules into sockets.

All components shall be available from multiple manufacturers as part of the manufacturers' standard product lines. All must be clearly labeled with the value, part number, tolerance, or other information sufficient to enable a technician to order an exact replacement part.

Lamps used for indicator purposes shall be light-emitting diodes.

The printed circuit boards shall be composed of "two-ounce" copper on 1/16-inch thick fiberglass epoxy or equivalent type construction. Holes that carry electrical connections from one side of the boards to the other shall be completely plated through. Multilayer printed circuit boards shall not be used. The name or reference number used for the board in the drawings and maintenance manuals supplied to the department shall be permanently affixed to each board.

All components shall be mounted so that the identifying markings are visible without moving or removing any part, if practical.

B.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:**
    a. **Operating power:** The equipment shall operate on 120-volts, 60-Hz, single-phase unless otherwise specified. It shall conform to its specified performance requirements when the input voltage varies from 89 to 135 volts and the frequency varies +3 Hz.
    b. **High frequency interference:** The equipment operation shall be unaffected by power supply voltage spikes of up to 150 volts in amplitude and 10 microseconds duration.
    c. **Line voltage transients:** The equipment operation shall be unaffected by voltage transients of plus or minus 20 percent of nominal line voltage for a maximum duration of 50 milliseconds. Equipment in the field shall meet the power service transient requirements of NEMA Standard TS-2 when connected to the surge protectors in the cabinets.
5. **Temperature and Humidity:**
    a. **Field equipment:** Equipment in the field shall meet the temperature and humidity requirements of NEMA Standard TS-2. Liquid crystal displays shall be undamaged by temperatures as high as 165 degrees F, and shall produce a usable display at temperatures up to 120 degrees F.
    b. **Equipment in Controlled Environments** shall operate normally at any combination of temperatures between 50 degrees F and 100 degrees F, and humidity's between 5 percent and 90 percent, non-condensing, and with a temperature gradient of 9 degrees F per hour.

B.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(s) entering each cabinet shall be protected by two-stage, plug-in surge protectors and shall be installed on both ends of camera control cables. The protectors shall meet or exceed the following minimum requirements:

- The protectors shall suppress a peak surge current of up to 10k amps.
- The protectors shall have a response time less than one nanosecond.
- 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.
- The first stage of protection shall be a three-element gas discharge tube, and the second stage shall consist of silicon clamping devices.
- The protector shall also contain a resettable fuse (PTC) to protect against excessive current.
- There shall be no more than two pairs per protector.
- It shall be possible to replace the protector without using tools.

Cables carrying power to curve signs shall be protected at the cabinet by grounded metal oxide varistors of appropriate voltages. The varistors must be at least 0.8 inch in diameter.

C Construction

C.1 Thread Protection

Provide rust, corrosion, and anti-seize protection at all thread assemblies of metallic parts by coating (non-spray) the mating surfaces with an approved compound. Failure to use an approved compound will result in no payment for the items to which coating was to have been applied.

C.2 Cable Installation

When installing new cables into conduits containing existing cables, remove the existing cables and reinstall the existing cables simultaneously with the new cables. Take every precaution necessary to protect the existing cables. In the event of avoidable damage to the existing cables, replace all damaged cables, in-kind, at no additional expense to the department. When cables are pulled into conduit, use a cable pulling lubricant approved by the cable manufacturer. Submit documentation supporting manufacturer approval of the lubricant to the engineer.

C.3 Wiring

Every conductor, except a conductor contained entirely within a single piece of equipment, must terminate either in a connector or on a terminal block. Provide and install the connectors and terminal blocks where needed, without separate payment. Use approved splice kits instead of connectors and terminal blocks for underground power cable splices.

Permanently label and key connectors to preclude improper connection. Obtain prior engineer approval for the labeling method(s) prior to use.

Terminal blocks must be affixed to panels that permanently identify the block and what wire connects to each terminal. This may be accomplished by silk screening or by installing a laminated printed card under the terminal block, with the labels on portions of the card that extend beyond the block. Installation of terminal blocks by drilling holes in the exterior wall of the cabinet is not acceptable.

Use barriers to protect personnel from accidental contact with all dangerous voltages.

Do not install conductors carrying AC power in the same wiring harness as conductors carrying control or communication signals.

Arrange wiring, including fiber optic pigtails, so that any removable assembly can be removed without disturbing wiring that is not associated with the assembly being removed.

Communication and control cables may not be spliced underground, except where indicated on the plans.

Cables in the Statewide Traffic Operations Center or in communication hubs, which are not contained within a single cabinet, shall have at least 10 feet of slack.

C.4 System Operations

If the contractor's operations unexpectedly interrupt Intelligent Transportation Systems (ITS) service, notify the engineer immediately and restore service within 24 hours. Repair all damaged facilities to the condition existing before the interruption. If service is not restored within 24 hours, the department may restore service to any operating device and deduct restoration costs from payments due the contractor.

C.5 Surge Protection

Arrange the equipment and cabinet wiring to minimize the distance between each conductor's point of entry and its protector. Locate the protector as far as possible from electronic equipment. Ensure that all wiring between the surge protectors and the point of entry is free from sharp bends.

D Measurement

No separate measurement will be made for the work described in this article.

E Payment

No separate payment will be made for the work described in this article. All work described in this article shall be included under the ITS items in the contract.

80. Intelligent Transportation Systems – Conduit.

Supplement standard spec 671.2 with the following:

671.2.4 Locate Wire
Furnish and install a No. 14 AWG stranded copper wire for future locate purposes through each conduit run. Connect the locate wire by using a wire nut at each pull box, manhole, or other access point. Alternatively, use a single wire through the access points. All material furnished under this item shall meet the requirements of standard spec 655.
671-005 (20100630)

81. Intelligent Transportation Systems – Signal Assemblies.

Modify standard spec 676 with the following:

676.2.4 Signal Heads
(1) Furnish the housing, visor, lenses, LED modules, and other components consisting of an LED signal head assembly meeting the requirements of ITE VTCSH-LED 2005.

(5) Illuminate each lens independently of any other lens with separate LED illumination modules.

(6) Not Applicable

(7) Not Applicable

(8) Not Applicable

82. QMP Concrete Structures.

This is a specialized QMP Concrete Structures specification modified for the Zoo Interchange project.

Replace standard spec 701, 710, 715 with the following:

A Description
A.1 General
Conform to standard spec 501, 502, and 504 as modified in this special provision. Apply this special provision to all cast in place concrete placed under the following bid items:

502.0100	Concrete Masonry Bridges
502.0200	Concrete Masonry Bridges HES
502.1100	Concrete Masonry Seal
504.0100	Concrete Masonry Culverts
504.0200	Concrete Masonry Culverts HES
504.0500	Concrete Masonry Retaining Walls
504.0600	Concrete Masonry Retaining Walls HES

Provide and maintain a quality control program, defined as all activities and documentation of the following:

1. Mix design.
2. Production control, placement control, and inspection.
3. Sampling, testing, and making necessary adjustments related to the production of ready-mixed concrete conforming to the contract.

Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes required sampling and testing procedures. The contractor may obtain the CMM from the department's web site at:

http://roadwaystandards.dot.wi.gov/standards/cmm/index.htm

The department's Materials Reporting System (MRS) software allows contractors to submit data to the department electronically, estimate pay adjustments, and print selected reports. Qualified personnel may obtain MRS software from the department's web site at:

http://www.atwoodsystems.com/mrs/

A.2 Pre-Pour Meetings

Arrange at least two pre-pour meetings to discuss concrete placement. Discuss the placement schedule, personnel roles and responsibilities, testing and quality control, and how test results will be communicated. Schedule the first meeting before placing any concrete and the second before placing any bridge deck concrete. Ensure that representatives from all parties involved with concrete work, including contractor, sub-contractor, ready mix supplier, testers, and the project manager, attend these meetings.

A.3 Contractor Testing for Small Quantities

The department defines a small quantity for each individual applicable bid item, as a plan quantity of 150 cubic yards or less of concrete as shown in the schedule of items under that bid item.

The requirements under this special provision apply equally to a small quantity for an individual bid item except as follows:

1. The contractor need not submit a full quality control plan but must provide an organizational chart to the engineer including names, telephone numbers, and current certifications of all persons involved in the quality control program.

2. The engineer may accept aggregate gradation based upon one or both of the following:
    - Satisfactory records of previous testing.
    - At least one test performed before beginning concrete production.
3. Divide the concrete placed under each bid item into approximately uniformly sized sublots as follows:

Quantity Placed	Minimum Required Number of Sublots[1]
≤ 50 cubic yards	One sublot
> 50 cubic yards and ≤ 100 cubic yards	Two sublots
> 100 cubic yards and ≤ 150 cubic yards	Three sublots

[1] If the quantity placed overruns 150 cubic yards, create overrun sublots to test at a rate of one additional sublot for 50 cubic yards, or fraction of 50 cubic yards, of overrun.

4. No concrete control charts are required. Submit test results to the engineer each day as they become available. Assure that all properties are within the limits specified in the standard specifications for each sublot tested and that the sublot compressive strength equals or exceeds f'c.

B Materials

B.1 Quality Control Plan

Submit a comprehensive written quality control plan. Construct the project as the plan provides. Submit the plan to the engineer no later than 10 business days before placing concrete. Do not begin concrete production or change the quality control plan without the engineer's review. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in each of the contractor's laboratories before producing concrete and as changes are adopted. Ensure that the plan provides the following elements:

- An organizational chart including names, telephone numbers, current certifications and/or titles, and roles and responsibilities of all QC personnel.
- The process by which quality control information and corrective action efforts will be disseminated to the appropriate persons including materials suppliers. Include a list of recipients, the communication means that will be used, action time frames, and report formats.
- Preliminary mix information including anticipated producers, manufacturers, and sources of mix materials, and the name, title, and phone number of the person responsible for developing the mix design.
- The locations of the QC laboratories for mix design, aggregate testing, cylinder curing, concrete testing, and compressive strength testing. Include a description of the sampling and testing equipment.
- Aggregate information including production and handling operations; how contamination, segregation, and degradation will be minimized; and anticipated concrete mix aggregate gradations and limits.
- The procedures for delivering, storing, and managing all mix materials.

- Facilities, procedures, and controls used to produce a mix conforming to the specifications and the mix design.
- The equipment, times, and methods used to deliver the concrete mix to the work site and to the point of placement.
- The initial and routine equipment checks and documentation performed on scales, water meters, admixture dispensers; and delivery, placing, surfacing, and curing equipment.
- The methods for monitoring and recording the materials used in each batch.
- The equipment and procedures for placing concrete and controlling the alignment, profile, cross slope, and thickness.
- The procedures that will be employed to correct problems as they occur.
- A description of the methods for finishing, texturing, and curing concrete.
- The types, standards, and frequency for contractor quality control (QC) testing. Conform to B.7 of this special provision and include, but do not limit discussion to the following:
- The number of tests performed for aggregate gradations, moisture, and fines; air content, temperature, slump, and compressive strength.
- Procedures for checking and documenting steel cover including locations and testing methods.
- Procedures for checking and documenting surface smoothness.
- Proposed corrective actions for each tested property.
- The lot layouts for compressive strength evaluation.
- Provisions for responding to adverse weather conditions; such as precipitation, and hot and/or cold weather placement.

B.2 Personnel

Have personnel certified under the department's highway technician certification program (HTCP) perform sampling, testing, and documentation as follows:

Required Certification Level:	Sampling or Testing Roles:
PCC Technician I PCC Assistant Certified Technician (ACT-PCC)	Sampling Fresh Concrete, Air Content Testing, Slump Testing, Temperature Testing, Fabrication and Curing of Concrete Strength Specimens
Concrete Strength Tester CST Assistant Certified Technician (ACT-CST)	Concrete Strength Testing
Aggregate Technician IPP Aggregate Sampling Technician Aggregate Assistant Certified Technician (ACT-AGG)	Aggregate Sampling
Aggregate Technician IPP Aggregate Assistant Certified Technician (ACT-AGG)	Aggregate Gradation Testing, Aggregate Finer than the No. 200 Sieve Testing, Aggregate Moisture Content 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.

Have a certified PCC technician I, or ACT-PCC working under a certified technician, present at the project site, prepared and equipped to perform required sampling and testing whenever placing concrete.

B.3 Laboratory

Perform the concrete mix design, aggregate testing, cylinder curing, and compressive strength testing at a department-qualified laboratory. Obtain information on the Wisconsin laboratory qualification program from:

Materials Management Section
3502 Kinsman Blvd
Madison, WI 53704
Telephone: (608) 246-5388
http://www.dot.state.wi.us/business/engrserv/lab-qualification.htm

B.4 Equipment

Furnish the necessary equipment and supplies for performing quality control testing. The engineer may inspect the measuring and testing devices to confirm both calibration and condition. Calibrate all testing equipment according to the CMM 8.30 and maintain a calibration record at the laboratory.

B.5 Concrete Masonry Mixes

B.5.1 General

Have a HTCP certified PCC technician II develop new concrete mixes for structures on the project. Test new mixes at a department-qualified laboratory. Alternatively, the contractor may submit established mixes qualified exclusively by field performance.

At least 3 business days before producing concrete, submit to the engineer 2 copies of a concrete mix report. Include signature blocks for both the contractor's mix developer and the department's engineer on the mix report cover sheet. Before the engineer's review, have the mix developer sign and date each copy attesting that all information in the report is accurate and true. The engineer will review, comment, sign, and date each copy of the report. The engineer's signature will verify that the engineer had the opportunity to review the mix report, to check that it meets the concrete mix requirements, and to comment. The engineer will keep one original signed copy and return the other copy to the contractor within 3 business days of receiving the report.

B.5.2 Concrete Mix Design

B.5.2.1 General

Delete standard spec 501.2.5.3.4, 501.2.5.4.4, 501.3.2.1, 501.3.2.2, and 501.3.2.3. Delete the maximum limit for material passing the No. 200 sieve from standard spec 501.2.5.3.1 and 501.2.5.4.2.

For all concrete masonry, including seals and other underwater placement, use a mix grade containing fly ash (A-FA), slag (A-S), both fly ash and slag (A-T), or blended cement (A-IP or A-IS).

B.5.2.1.1 Trial Mixes

Develop and test new mixes for each mix to be used for HPC Masonry Superstructures. For HPC Masonry Superstructures there shall be a laboratory trial mix for each mix, as well a trial mix from each central mix plant to be used to supply each mix on the project. Test all mixes at a department-qualified laboratory.

The laboratory trial mix data shall include the results of the following:

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.
6. AASHTO T 309 Temperature.
7. Water Cement Ratio.

28 day Compressive Strength shall be equal to or greater than 4000 p.s.i. The 28 day results of the Permeability Test Shall be less than 2000 coulombs.

B.5.2.2 Documentation

Provide mix design documentation ensuring that all materials conform to standard spec 501.2, as modified in this special provision, unless the engineer waives specific requirements. Include documentation for contractor mix designs as follows:

1. Mix development: test dates, the name and location of the laboratory used to develop the mix design.
2. Mix: quantities per cubic yard expressed as SSD weights and net water, water to cementitious material ratio, air content, and 28-day or earlier compressive strength.
3. Materials: type, brand, and source.
4. Aggregates: absorption, specific gravities, wear, soundness, freeze thaw test results if required, air correction factor, and proposed gradation control limits.

B.5.2.3 Concrete Mix Physical Requirements

Qualify compressive strength according to ACI Code 318 chapter 5 subsections 5.3.1 through 5.3.3 and 5.5. Use either laboratory strength data for new mixes or field strength data for established mixes. Demonstrate that the 28-day compressive strength of the proposed mix will equal or exceed the 90 percent within limits criterion specified in E.3.

Ensure that the cementitious content for grade A concrete equals or exceeds 565 pounds per cubic yard. Ensure that the cementitious content for HPC Masonry Superstructure

equals or exceeds 540 pounds per cubic yard but does not exceed 600 pounds per cubic yard. For all superstructure and substructure concrete, unless the engineer approves otherwise in writing, conform to one of the following:

1. Use class C fly ash or grade 100 or 120 slag as a partial replacement for Portland cement. For binary mixes use 15% to 30% fly ash or 20% to 30% slag. For ternary mixes use 15% to 30% fly ash plus slag in combination. Percentages are stated as percent by weight of the total cementitious material in the mix.
2. Use a type IP, IS, or I(SM) blended cement.

Ensure that the target ratio of net water to cementitious material (W/Cm) for the submitted mix design does not exceed 0.45 by weight. Net water includes free water on the aggregate surface but does not include water absorbed within the aggregate particles. Control the W/Cm ratio throughout production by adjusting batch weights for changes in the aggregate moisture as required under B.7.3.2.

Ensure that the combined aggregate gradation conforms to the following, expressed as weight percentages of the total aggregate:

1. One hundred percent passes the 2 inch sieve.
2. The percent passing the 1 inch sieve is less than or equal to 89. The engineer may waive this requirement where the clear spacing between reinforcing bars is less than 2 inches.
3. The percent passing the No. 4 sieve is less than or equal to 42, except if the coarse aggregate is completely composed of crushed stone, up to 47 percent may pass the No. 4 sieve.
4. The percent passing the No. 200 sieve is less than or equal to 2.3 percent.

Do not use any chemical admixtures, other than air-entraining agents or water reducers from the department's approved products list, without conforming to the following:

- Obtain the engineer's approval in advance.
- Document, by independent laboratory test reports, that the admixture conforms to AASHTO M 194.

Do not use mixes containing chloride based accelerators. The contractor may use mixes containing non-chloride accelerators in substructure elements only.

B.5.3 Mix Changes

Prepare and submit changes to a concrete mix to the engineer for review before using that mix. Changes requiring the engineer's review include:

1. Source of any material.
2. Amounts of cementitious materials.
3. Adjustment of fine to total aggregate greater than ±3 percent by weight.
4. Admixtures used in the mix.

Adjusting admixture dosages does not require the engineer's review.

B.6 Quality Control Documentation

B.6.1 Control Charts

Maintain control charts when required by the test reporting procedures. Ensure that all test results are recorded and become part of the project records. Plot required test results on the control charts. Include random, non-random, and engineer requested testing but only include the contractor's randomly selected QC test results in the 4-point running average. The contractor may plot other contractor-performed process control or informational test results on the control charts, but do not include them in 4-point running averages.

Post control charts in an engineer-approved location both on the project and at the concrete production site. Update control charts daily. Ensure that the control charts include the project number, the test number, each test element, the applicable warning and control limits, the contractor's individual test results, the running average of the last 4 data points, and the engineer's verification and independent assurance test data points. Use the control charts as part of a process control system for identifying potential problems and assignable causes. Format control charts according to CMM 8.30.

Submit control charts to the engineer in a neat and orderly manner within 10 days after completing concrete production.

B.6.2 Records

Document all observations, inspection records, mix adjustments, and test results daily. Submit test results to the department electronically using the MRS software. Complete all required data entry fields. Record other test results using the forms provided in CMM 8.35. Note other information in a permanent field record and, if appropriate, plot on control charts.

Submit original testing records to the engineer in a neat and orderly manner within 10 days after completing concrete production.

B.7 Contractor Testing

B.7.1 General

Perform all contractor tests required under this special provision as well as additional contractor testing described in the quality control plan. Use the test methods identified below or other engineer-approved methods to perform the following tests:

Aggregate Gradations .....AASHTO T-11[1] and T-27[1]
Aggregate materials finer than the No. 200 sieve.....AASHTO T 11[1]
Aggregate moisture.....AASHTO T 255[1]
Air content .....AASHTO T 152[2]
Slump .....AASHTO T 119[2]
Temperature .....AASHTO T 309
Compressive strength..... AASHTO T 22, T 23, T 141, M 201

[1] As modified in CMM 8.60.
[2] As modified in CMM 8.70.

Chloride Penetration Resistance…….AASHTO T259, T277

The department may periodically observe contractor sampling and testing, and direct additional contractor sampling and testing for department evaluation. Ensure that all test results are available for the engineer's review at any time during normal working hours.

B.7.2 Aggregate Gradation

B.7.2.1 Sampling and Testing

Randomly sample and test the individual aggregate gradations according to AASHTO T 11 and AASHTO T 27 as modified by the department.

Test during aggregate production as follows:

Daily Aggregate Production (in tons)	Minimum Frequency Per Stockpile (tests per day)
≤ 1000	1
> 1000 - ≤ 2000	2
> 2000	3

If the aggregate was produced before the contract and production records are not available or not acceptable to the engineer, test during concrete production. Randomly sample and test each stockpile a minimum of once for each 250 cubic yards of concrete produced for WisDOT projects.

For testing performed during aggregate production, conform to the individual gradation limits documented in the contractor's quality control plan for the coarse and fine aggregate fractions. For testing performed during concrete production, conform to the combined gradation limits documented in the contractor's quality control plan.

Ensure that only results of randomly selected QC tests are included in the 4-point running average.

Use control limits for sieve sizes as identified in contractor's quality control plan. Gradation warning limits are inside the upper and lower control limit values by one percentage point for all sieves except as follows:

1. The upper warning limits for percent passing the No. 100 and No. 200 sieves are inside the control limit by 0.5 percent.
2. For sieves allowing 100 percent passing, there is no upper warning limit. For sieves with 0 percent passing, there is no lower warning limit.

Wash each sample of fine aggregate and the first 4 samples of each of the coarse aggregates. If the percent passing the No. 200 sieve for the combined gradation is less than the warning limit, wash at least every 10^{th} sample of each of the coarse aggregates. If the percent passing the No. 200 sieve for the combined gradation is greater than or equal to the warning limit, wash each sample of the coarse aggregate until 4 consecutive tests are less than the warning limit.

B.7.2.2 Documentation

Maintain control charts at the laboratory for each aggregate stockpile. Maintain a chart for each control sieve for each material. Record contractor test results the same day tests are conducted.

B.7.2.3 Corrective Action

When the 4-point running average value approaches a warning limit, consider corrective action. Ensure that any corrective action is documented and becomes part of the project records.

Document whenever a 4-point running average exceeds the warning limits. When a second consecutive running average value exceeds the warning limits, take corrective action. Continue corrective action until 2 consecutive average points are within the warning limits.

Notify the engineer whenever an individual test value exceeds a control limit. Material is nonconforming if an individual test result exceeds the control limit. The quantity of nonconforming material includes the material of the first test exceeding the control limit, continuing to but not including, the material from the first subsequent test that is within the control limits. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

B.7.3 Aggregate Sampling and Testing During Concrete Production

B.7.3.1 Aggregate Moisture Content

Determine aggregate moisture content according to AASHTO T 255. The contractor may use the same sample used for the percent passing the No. 200 sieve testing.

Measure and record the fine and coarse aggregate moisture content whenever conditions change. Test at least once for each 50 cubic yards of concrete produced for WisDOT projects, except one test per day is sufficient under constant conditions. Record the time the sample was taken on the combined percent passing the No. 200 sieve control chart.

Calculate target batch weights for each mix when production of that mix begins. Whenever the moisture content of the fine or coarse aggregate changes by more than 0.5 percent, adjust the batch weights to maintain the design W/Cm ratio.

B.7.3.2 Aggregate Percent Passing the No. 200 Sieve

B.7.3.2.1 Sampling and Testing

Determine the percent passing the No. 200 sieve for both fine and coarse aggregates according to AASHTO T 11 as modified by the department.

Initially, test at least once for each 50 cubic yards of concrete produced for WisDOT projects, except one test per day is sufficient for constant mix conditions. When 2 consecutive 4-point running averages are below the warning limit, the engineer may allow reduced testing down to a minimum of once per 5 days of concrete production. If a subsequent individual test exceeds the warning limit, return to the initial frequency.

Document results on a combined gradation control chart for the percent passing the No. 200 sieve. Use the control limits defined in the contractor's quality control plan or mix design report. Ensure that only results of QC tests are included in the 4-point running average.

B.7.3.2.2 Corrective Action

When an individual test approaches a warning limit, consider corrective action. Document corrective actions and include that documentation in the project records.

Notify the engineer if an individual test exceeds the warning limits. If a second consecutive individual test exceeds the warning limits, the engineer and contractor will determine the contractor's course of corrective action. If the corrective action improves the property in question such that additional individual tests are within the warning limits, the contractor may continue production. If the correction does not improve the property, and new individual tests stay in the warning band, repeat the steps outlined here in B.7.2.3(2) starting with notifying the engineer.

Notify the engineer whenever an individual test value exceeds a control limit. Material is nonconforming when an individual test exceeds the control limit. The quantity of nonconforming material includes the material of the first test exceeding the control limit, continuing to but not including, the material from the first subsequent test that is within the control limits. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

B.7.4 Compressive Strength

The department will make pay adjustments for compressive strength on a lot-by-lot basis using the compressive strength of contractor QC cylinders. The department will accept or reject concrete on a sublot-by-sublot basis evaluating material for removal and replacement based on core strengths.

B.7.4.1 Lot and Sublot Requirements

Designate the location and size of all lots for the project before placing concrete. Ensure that no lot contains concrete of more than one mix, as defined in B.5.3, and does not exceed 500 cubic yards. Designate separate lots for concrete masonry deposited underwater.

Divide each lot into sublots 50 cubic yards or smaller. Do not designate more than one sublot per truckload of concrete.

B.7.4.2 Sampling

Determine random sublot sampling locations as described in CMM 8.30. Sample at the point of placement and according to AASHTO T 141. Collect enough concrete to fabricate three 6-inch by 12-inch cylinders; test air content, slump, and temperature; and where needed, additional concrete to fabricate 3 companion cylinders.

Cast and initially cure cylinders according AASHTO T 23. Mark each cylinder to identify the lot and sublot it represents.

B.7.4.3 Concrete Cylinder Curing

Provide initial field curing for up to 48 hours. Between 24 and 48 hours after fabrication, transport the cylinders to a laboratory for standard curing according to AASHTO M 201.

B.7.4.4 Compressive Strength Testing

Perform compressive strength testing and document the results. Randomly select 2 QC cylinders to test at 28 days for percent within limits (PWL).

Determine the compressive strength in psi for each cylinder according to AASHTO T 22. Test each cylinder to failure. Use a compression machine that automatically records the date, time, rate of loading, and maximum load for each cylinder. Include a printout of this information with the strength documentation for each cylinder tested.

Compare the strengths of the 2 randomly selected QC cylinders 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 cylinders.
- If the lower strength divided by the higher strength is less than 0.9, break one additional cylinder and average the 2 higher strength cylinders.

B.7.4.5 Removal and Replacement

The department will evaluate the sublot for possible removal and replacement if the 28-day sublot average strength is lower than f'c minus 500 psi. The value of f'c is the design stress the plans show. The department may assess further strength penalty or require removal and replacement only after coring the sublot.

The engineer may initially evaluate the sublot strength using a non-destructive method. Based on the results of non-destructive testing, the department may accept the sublot at the previously determined pay for the lot, or direct the contractor to core the sublot.

If the engineer directs coring, obtain three cores from the sublot in question. Have an HTCP certified PCC technician I perform or observe core sampling according to AASHTO T 24. Determine core locations, subject to the engineer's approval, that do not interfere with structural steel. Fill all core holes with non-shrink grout.

Have an independent consultant test cores according to AASHTO T 24, except test cores dry after air-curing if the cores are from above-grade concrete elements that will be only superficially wet in service.

If the 3-core average is greater than or equal to 85% of f'c, and no individual core is less than 75% of f'c, the engineer will accept the sublot at the previously determined pay for the lot. If the 3-core average is less than 85% of f'c, or an individual core is less than

75% of f'c, the engineer may require the contractor to remove and replace the sublot or assess a penalty of $35 per cubic yard or more.

B.7.5 Air Content

On each day of production, test air content at the point of placement at start-up and as frequently as practicable until the concrete meets the specifications and the production process is under control. Subsequently, test air content for each compressive strength sublot. Test air content according to AASHTO T 152, as modified by the department. Test concrete taken from the same sample used for QC strength cylinders, and as the engineer directs.

The lower and upper control limits for air content are 4.5% and 7.5%. The lower warning limit for air content is 5.0%. There is no upper warning limit.

B.7.5.1 Documentation

Maintain a control chart at a fixed location on the project site. Ensure that all test results are recorded and become part of the project records. Chart all results on the same day tests are conducted. Record the results of required start-up and corrective action non-random test results on the air content control charts, but do not include them in the 4-point running average.

Document admixture dosage rates, time of day, and air temperature on the combined gradation control chart for the percent passing the No. 200 sieve whenever changing an admixture dosage rate.

B.7.5.2 Corrective Action

If an individual air test is between the lower warning limit and lower control limit, perform non-random testing on as many subsequent loads as possible until an individual test result is above the warning limit. At that point the contractor may resume regular random testing.

When the 4-point running average value trend is towards the lower warning limit or the upper control limit, consider corrective action.

Notify the engineer if a 4- point running average is less than the lower warning limit. If a second consecutive running average is below the warning limit, the engineer and contractor will determine the contractor's course of corrective action. If the corrective action improves the property in question such that the new running average, after 4 additional individual tests, is between the lower warning limit and upper control limit, the contractor may continue production. If the new running average is below the lower warning limit, repeat the steps outlined here in B.7.5.2(3) starting with notifying the engineer.

If an individual air test is outside the control limits, notify the engineer, and perform additional air tests as often as practicable on subsequent loads until the air content is inside the control limits. The material is nonconforming when an individual test exceeds

the control limit. Material from the load with the first test exceeding the control limit, continuing to but not including the load with the first subsequent test within the control limits, is nonconforming. The department may direct removal and replacement or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

B.7.6 Concrete Temperature

Have an HTCP certified PCC technician I measure concrete temperature according to AASHTO T 309. Test concrete taken from the same sample used for QC strength cylinders. Record concrete temperatures on the air content control chart. For HPC Masonry Superstructures, conform to the hot weather concreting provisions per the special provision for HPC Masonry Superstructures. For all other concrete, conform to the hot weather concreting provisions per the special provision for Concrete Masonry Structures.

B.7.7 Slump

Measure slump according to AASHTO T 119. On each day of production, test slump at the point of placement at start-up and as frequently as practicable until the concrete meets the specifications and the production process is under control. Subsequently perform slump testing at the same frequency and from the same sample as used for strength cylinders. Make additional slump tests as the engineer directs. Measure slump to the nearest ¼ inch. Ensure that slump at the point of placement is 3 inches ±1 inch, except for concrete placed underwater, conform to standard spec 502.3.5.3.

B.7.8 Chloride Penetration Resistance

For each new or changed mix design for the bid item HPC Masonry Superstructure, measure chloride penetration resistance in accordance to AASHTO *T259* (Salt Ponding Test).

For each new or changed mix design for the following bid items:

502.0100	Concrete Masonry Bridges
502.0200	Concrete Masonry Bridges HES
504.0500	Concrete Masonry Retaining Walls
504.0600	Concrete Masonry Retaining Walls HES

measure chloride penetration resistance in accordance to AASHTO T277 (Rapid Chloride Permeability Test) at a frequency of 1 test per 3 months (quarterly) of production:

It is the intent of this specification that the initial accepted mix design meets the chloride penetration resistance limit of 2000 coulombs based on the AASHTO T277, Rapid Chloride Permeability Test. Chloride resistance testing conducted quarterly using AASHTO 277 (Rapid Chloride Permeability Test) during production will not be used for acceptance of previously accepted mixes and concrete masonry mixed and placed in accordance to the contract requirements. For quarterly chloride resistance test results

exceeding 2000 coulombs, the department may require adjustment of the concrete mix going forward to improve the chloride penetration resistance.

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.

Except for strength, the department will provide test results to the contractor within 2 business days after the department obtains the sample.

B.8.2 Verification Testing

The department will have a HTCP certified 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 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.

The department will sample randomly at locations independent of the contractor's QC work. 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:

	Testing Frequency Guide[1]	**Sampling Material and Location**	**Test Method**	**Alternate Test Methods**
Air Content	1 per lot	Plastic concrete	AASHTO T 152 as modified	Hardened air content testing[2] after construction
28-day Compressive Strength	1 per lot	Cylinders	AASHTO T 22, T 23 and T 141 as modified	Random cores[2] after construction

[1] The engineer may increase the frequency at start-up or as necessary to validate the quality of the materials. The engineer may reduce the frequency based on a history of satisfactory contractor or material performance.

[2] Evaluation of test results should account for systematic differences in testing methods or sampling locations.

Plot verification test results on the contractor's quality control charts as specified in B.6.1. Do not include verification test results in the 4-point running average.

If verification tests conform to specifications, no further action is required. If verification tests do not conform to specifications, 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 production until action is taken. Resolve disputes as specified in B.9.

B.8.3 Independent Assurance Testing

Independence 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 test results on the quality control charts as specified in B.6.1. Do not include independent assurance test results in the 4-point running average.

If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend production until action is taken. Resolve disputes as specified in B.9.

B.9 Dispute Resolution

The engineer and contractor shall 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 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.

B.10 Acceptance

The department will accept HPC Masonry Superstructures per the requirements of the special provision for HPC Masonry Superstructures and all other concrete per the requirements of the standard specifications, based on the contractor QC tests, with the exception of quarterly chloride resistance testing, unless it is shown through the verification or the dispute resolution process that the contractor's test results are in error.

C (Vacant)

D (Vacant)

E Payment

E.1 QMP Testing

Costs for all sampling, testing, and documentation required under this special provision and all charges incurred for coring, including traffic control, 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 Pay Adjustment for Strength

The department will administer disincentives for compressive strength under the Disincentive Strength Concrete Structures administrative item.

The department will adjust pay for each lot using percent within limits (PWL) of the 28-day sublot average strengths for that lot. The department will measure PWL relative to the lower specification limit of 4000 psi.

Submit strength results to the department electronically using the MRS software. The department will validate all contractor data before determining pay adjustments.

The department will adjust pay for each lot using equation "QMP 2.02" as follows:

PERCENT WITHIN LIMITS (PWL)	PAY ADJUSTMENT[1] (dollars per cubic yard)
≥ 90 to 100	0
≥ 50 to < 90	(7/8 x PWL) – (78.75)
< 50	-35

[1] For lots with less than four sublots, the department will assess a disincentive based on the individual sublot average strengths. The department will reduce pay for sublots with an average strength below 4000 psi by $35 per cubic yard.

83. Incentive/Disincentive for Interim Completion of Work, Item 108.3100.S.0001.

A General

This item shall consist of either an incentive payment or a disincentive pay reduction as specified below.

The contractor shall complete all of the work necessary to keep the northbound STH 100 right-turn lane to eastbound W. Bluemound Road open to one traffic lane and barrier separated from the work zone on new concrete pavement with no flagging operations during the intersection closure of STH 100 and W. Bluemound Road in this contract between 12:01 AM July 20, 2013 and 12:01 AM August 1, 2013.

The completion time allowed for this contract is based on an expedited work schedule.

Under this Incentive/Disincentive plan, no time extensions will be granted for adverse weather conditions; for delays in material deliveries; or for labor disputes unless it can be shown that such disputes are industry wide.

Each day shall be defined as a 24 hour period beginning at 12:01 AM.

The maximum incentive payment, as shown on the Schedule of Items, is for department accounting purposes. The actual incentive payment the contractor may receive shall be in accordance to section B of this provision.

Incentive payments will not be considered as part of the money value of the work completed for computing time extensions.

B Incentive Payment

The contractor shall be entitled to an incentive payment for completion of all of the work necessary to keep the northbound STH 100 right-turn lane to eastbound W. Bluemound Road open to one traffic lane and barrier separated from the work zone on new concrete pavement with no flagging operations during the intersection closure of STH 100 and W. Bluemound Road in this contract between 12:01 AM July 20, 2013 and 12:01 AM August 1, 2013.

The incentive payment shall be paid at the rate of $3,000 per calendar day for each day or portion thereof, of completion between 12:01 AM July 20, 2013 and 12:01 AM August 1, 2013. The maximum amount of incentive payment shall not exceed $36,000.

C Disincentive Pay Reduction

Should the contractor fail to complete all of the work necessary to keep the northbound STH 100 right-turn lane to eastbound W. Bluemound Road open to one traffic lane and barrier separated from the work zone on new concrete pavement with no flagging operations during the intersection closure of STH 100 and W. Bluemound Road in this contract between 12:01 AM July 20, 2013 and 12:01 AM August 1, 2013, the contractor

shall be liable to the department for a pay reduction in the amount of $3,000 per day or portion thereof, for each calendar day between 12:01 AM July 20, 2013 and 12:01 AM August 1, 2013 that work remains incomplete.

D Measurement and Payment
Incentive/Disincentive for interim Completion of Work will be measured by the calendar day and will be paid for at the contract unit price per calendar day.

The unit price per day based on the incentive pay adjustment shall be compensation in full for completing the work as hereinbefore specified.

The unit price per day based on the disincentive pay reduction shall be assessed for failing to complete all the work as hereinbefore specified.

84. Incentive/Disincentive for Interim Completion of Work, Item 108.3100.S.0002.

A General
This item shall consist of either an incentive payment or a disincentive pay reduction as specified below.

After 12:01 AM August 1, 2013, the segment of W. Watertown Plank Road between Station 15WEB+81.40 and Station 32WEB+75.00 can be closed to eastbound and westbound vehicular traffic. The contractor shall complete all of the work and coordination measures necessary to fully open the segment of W. Watertown Plank Road between Station 15WEB+81.40 and Station 32WEB+75.00, including storm sewer, placement of concrete pavement and curb and gutter, asphaltic surface, temporary or permanent street lighting, pavement markings, signing, temporary signals, and all incidentals necessary for opening the segment of W. Watertown Plank Road to vehicular traffic under this contract prior to 12:01 AM August 11, 2013. Open STH 100 and W. Watertown Plank Road to traffic as shown in Stage 3C of the plan.

The completion time allowed for this contract is based on an expedited work schedule.

Under this Incentive/Disincentive plan, no time extensions will be granted for adverse weather conditions; for delays in material deliveries; or for labor disputes unless it can be shown that such disputes are industry wide.

Each day shall be defined as a 24 hour period beginning at 12:01 AM.

The maximum incentive payment, as shown on the Schedule of Items, is for department accounting purposes. The actual incentive payment the contractor may receive shall be in accordance to section B of this provision.

Incentive payments will not be considered as part of the money value of the work completed for computing time extensions.

B Incentive Payment
The contractor shall be entitled to an incentive payment for completion of all of the work and coordination measures necessary to fully open the segment of W. Watertown Plank Road between Station 15WEB+81.40 and Station 32WEB+75.00, including storm sewer, placement of concrete pavement and curb and gutter, asphaltic surface, temporary or permanent street lighting, pavement markings, signing, temporary signals, and all incidentals necessary for opening the segment of W. Watertown Plank Road to vehicular traffic under this contract prior to 12:01 AM, August 11, 2013.

The incentive payment shall be paid at the rate of $20,000 per calendar day for each day or portion thereof, of completion prior to 12:01 AM August 11, 2013. The maximum amount of incentive payment shall not exceed $100,000.

C Disincentive Pay Reduction
Should the contractor fail to complete all of the work and coordination measures necessary to fully open the segment of W. Watertown Plank Road between Station 15WEB+81.40 and Station 32WEB+75.00, including storm sewer, placement of concrete pavement and curb and gutter, asphaltic surface, temporary or permanent street lighting, pavement markings, signing, temporary signals, and all incidentals necessary for opening the segment of W. Watertown Plank Road to vehicular traffic under this contract prior to 12:01 AM, August 11, 2013, the contractor shall be liable to the department for a pay reduction in the amount of $20,000 per day or portion thereof, for each calendar day after 12:01 AM, August 11, 2013 that work remains incomplete.

If contract time expires before completing all work specified in the contract, additional liquidated damages according to standard spec 108.11 will be affixed in addition to the disincentive pay reduction.

D Measurement and Payment
Incentive/Disincentive for interim Completion of Work will be measured by the calendar day and will be paid for at the contract unit price per calendar day.

The unit price per day based on the incentive pay adjustment shall be compensation in full for completing the work as hereinbefore specified.

The unit price per day based on the disincentive pay reduction shall be assessed for failing to complete all the work as hereinbefore specified.
108-056 (20080501)

85. Debris Containment Structure B-40-433, Item 203.0225.S.0001.

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 107.19 or requirements under a US Army Corps of Engineers Section 404 Permit.

B (Vacant)

C Construction

Prior to starting work, submit a debris containment plan to the engineer for review. Incorporate engineer-requested modifications. Do not start work over the Union Pacific Railroad line until the engineer approves the debris containment plan.

Maintain adequate protection throughout construction for people and property within the potential fall zone. Ensure that a containment system capable of protecting underlying facilities from falling construction debris is in place before beginning deck repair, parapet removal, or other operations that may generate debris.

At least 15 working days before conducting potential debris generating operations, contact the engineer and the following owners or lessees:

John Venice, Manager of Special Projects – Industry and Public Projects,
Engineering Department
Union Pacific Railroad Company
101 North Wacker Drive, Suite 1920
Chicago, IL 60606
Telephone: (312) 777-2043
Fax: (402) 233-2769
email jnvenice@up.com

D Measurement

The department will measure Debris Containment Structure B-40-433 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 Structure B-40-433	LS

Payment is full compensation for furnishing, installing, maintaining, and removing a debris containment system.

203-010 (20080902)

86. Abandoning Sewer, Item 204.0291.S.

A Description

This special provision describes abandoning existing sewer by filling it with cellular concrete according to the pertinent requirements of standard spec 204 and standard spec 501, as shown in the plans, and as hereinafter provided.

B Materials

Provide cellular concrete meeting the following specifications: 1 part cement, 1 part fly ash, 8 parts sand, or an approved equal, and water. Provide cement meeting the requirements of standard spec 501.2.1 for Type 1 Portland Cement. Provide sand meeting the requirements of standard spec 501.2.5.3 Provide water meeting the requirements of standard spec 501.2.4.

C Construction

Fill the abandoned sewer pipe with cellular concrete as directed by the engineer. In the event that the sewer cannot be completely filled from existing manholes, tap the sewer where necessary and fill from these locations.

D Measurement

The department will measure Abandoning Sewer in volume by the cubic yard according to standard spec 109.1.3.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
204.0291.S	Abandoning Sewer	CY

Payment is full compensation for furnishing all materials and excavating and backfilling where necessary.

204-050 (20080902)

87. 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 licensed facility. The closest DNR licensed landfill facilities are:

Waste Management Orchard Ridge Landfill
N96W13503 County Line Road
Menomonee Falls, WI 53051

Veolia Emerald Park Landfill
W124S10629 South 124th Street
Muskego, WI 53150

Perform this work in accordance 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 and Groundwater Location(s)

The department and others completed testing for soil and groundwater contamination for locations within this project where excavation is required. Testing indicated that petroleum-contaminated soil and groundwater is present at the following locations as shown on the plans:

- STH 100 Station 620SS+75 to 623SS+00 from reference line to project limits left. Petroleum-contaminated soil is present approximately 6 to 10 feet bgs. Approximately 530 cubic yards (approximately 900 tons at an estimated 1.7 tons per cubic yard) of soil to be excavated from this area for storm sewers will require bioremediation.
- STH 100 Station 628SS+75 to 630SS+00 from reference line to project limits left. Petroleum-contaminated soil is present approximately 4 to 16 feet bgs. Approximately 89 cubic yards (approximately 150 tons at an estimated 1.7 tons per cubic yard) of soil to be excavated from this area for sewer and utilities will require bioremediation.
- Union Pacific Railroad Station 4767RRW+00 to 4771RRW+00 from south railroad tunnel extension project limits left to project limits right. Petroleum-contaminated soil is present from 0 to 8 feet bgs. Approximately 2,725 cubic yards (approximately 4,650 tons at an estimated 1.7 tons per cubic yard) of soil to be excavated from this area for structure construction will require bioremediation. Free product was not encountered in the Phase 2.5 investigation conducted for this project, however free product was present at this location historically. If free product is encountered, stop work and notify the engineer. The WisDOT's environmental consultant will coordinate the management of any free product that is encountered and that must be removed to complete the project.

Directly load soil excavated by the project at the above location into trucks that will transport the soil to a WDNR-licensed bioremediation facility.

A.3 Notice to the Contractor – Contaminated Soil Beyond the Construction Limits

A review of available information for the construction corridor indicates that contaminated soil is or may be present beyond the construction limits at the locations listed below:

- STH 100 Station 579+80SS to 580+40SS, beyond the project limits left (151 N. Mayfair Rd, Mobil Station).
- W. Bluemound Road Station 163+75BE to 165+00BE, beyond the project limits left (10636 W. Bluemound Rd, Shell Station).
- STH 100 Station 604+75SS to 607+00SS, beyond the project limits left (717 N. Mayfair Rd, Clark Station).
- STH 100 Station 614+50SS to 620+75SS, beyond the project limits left (former bulk petroleum plant).
- STH 100 Station 623+00SS to 625+50SS, beyond the project limits left (former bulk petroleum plant).
- STH 100 Station 627+00SS to 628+75SS, beyond the project limits left (former bulk petroleum plant).
- W. Watertown Plank Road Station 35+70 WWB to 36+30WWB, beyond project limits left (MKE Co, Site 27, GIS Registry for SW corner of building).

Contaminated soil at the above locations 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 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 engineer and protect them to maintain their integrity.

The excavation management plan for this project has been designed to minimize the offsite disposal 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 at these sites contact:

Name:	Michael Cape, P.G.
Address:	141 NW Barstow Street, Waukesha, WI 53187-0798
Phone:	(262) 548-5930
Fax:	(262) 548-6891
E-mail:	michael.cape@dot.state.wi.us

A.4 Coordination

Coordinate work under this contract with the environment consultant:

Consultant:	TRC Environmental Corporation
Address:	150 N. Patrick Blvd. Ste. 180, Brookfield, WI 53045
Contact:	Mr. Ken Yass or Mr. Tyler Stapel
Phone:	(262) 901-2145 or (262) 825-2045
Fax:	(262) 879-1220
E-mail:	kyass@trcsolutions.com or wstapel@trcsolutions.com

The role of the environmental consultant will be limited to:

- 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;
- Identifying contaminated soils to be hauled to the landfill facility;
- 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
- Obtaining the necessary approvals for disposal of contaminated soil from the landfill facility.

Provide at least a 14-calendar day notice of the preconstruction conference date to the environmental consultant. At the preconstruction conference, provide a schedule for all excavation activities in the 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 landfill facility that will be used for disposal 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 landfill facility for disposal 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. 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.

On the basis of the results of such field-screening, the material will be designated for disposal as follows:

- Excavation Common – clean soil, construction and demolition fill (such as clean soil, boulders, concrete, reinforced concrete, bituminous pavement, bricks, building stone, unpainted or untreated wood), which under NR 500.08 are exempt materials.
- Low-level contaminated material for reuse as fill within the construction limits, or
- Contaminated soil for disposal at the WDNR-licensed disposal facility, or
- Potentially contaminated for temporary stockpiling and additional characterization prior to disposal.

If during excavations outside the areas of known contamination, materials are encountered that exhibit characteristics of municipal wastes or contain significant quantities of industrial-type wastes, such as fly ash, foundry sand, and cinders, or when conditions such as unknown underground storage tanks or soil/fill material with noticeable impacts from petroleum or chemical products, or other obvious potentially contaminated materials are encountered, suspend excavation in that area and notify the engineer and the environmental consultant.

Some material may require additional characterization prior to disposal. Provide for the temporary stockpiling of up to 200 cubic yards of contaminated soil on-site that require additional characterization. Construct and maintain a temporary stockpile of the material in accordance to NR 718.05(3), including, but not limited to, placement of the contaminated soil/fill material on an impervious surface and covering the stockpile with material to prevent infiltration of precipitation. The department's environmental consultant will collect representative samples of the stockpiled material, laboratory-analyze the samples, and advise the contractor, within 10 business days of the construction of the stockpile, of disposal requirements. The stockpiled material shall be disposed either at the WDNR-licensed disposal facility by contractor or if characterized as a hazardous wastes, by the department. As an alternative to temporarily stockpiling contaminated soil/fill material that requires additional characterization, the contractor has the option of suspending excavation in those areas where such soil is encountered until such time as characterization is completed.

Directly load and haul soils designated by the environmental consultant for offsite disposal to the DNR approved landfill 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.

Verify that the vehicles used to transport material are licensed for such activity in accordance to applicable state and federal regulations. Obtain the necessary disposal facility approvals and DNR approvals for disposal. Do not transport regulated solid waste off-site without obtaining the approval of the environmental consultant and engineer and notifying the disposal facility.

If dewatering is required in area of known contamination, water generated from dewatering activities will likely contain petroleum VOCs. Such water may, with approval of 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 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 this construction project.

D Measurement

The department will measure Excavation, Hauling, and Disposal of Petroleum Contaminated Soil in tons of contaminated soil accepted by the landfill facility as documented by weight tickets generated by the landfill 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 disposal of contaminated soil; for obtaining solid waste collection and transportation service operating licenses; for assisting in the collection of soil samples for field evaluation; for constructing and maintaining temporary stockpiles; for furnishing and placing an impervious surface on which to place temporary stockpiles; for furnishing and placing material used as temporary stockpile covering; and for dewatering of soils prior to transport, if necessary. No additional payment will be made for tipping fees associated with the disposal of contaminated soil.

205-003 (20080902)

88. Temporary Shoring, Item 206.6000.S.

A Description

This special provision describes designing and providing temporary shoring at locations the plans show.

B Materials

B.1 Shoring Design

Provide a shoring design for each location where the plan requires temporary shoring. Have a professional engineer, registered in the State of Wisconsin and knowledgeable of the specific site conditions and requirements, verify the adequacy of the design. Submit one copy 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.

C Construction

Provide temporary shoring at each required location conforming to the design developed for that location.

Remove the shoring when it is no longer needed unless the engineer allows it to remain in place. 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 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 measured quantities at the contract unit price under the following bid item.

ITEM NUMBER	DESCRIPTION	UNIT
206.6000.S	Temporary Shoring	SF

Payment is full compensation for designing and providing shoring; for providing a signed and sealed copy of the design; and for backfilling and removing the shoring.

The department will not pay for temporary shoring, installed for contractor convenience that is not required in the plans.

206-005 (20110615)

89. QMP Ride; Incentive IRI Ride, Item 440.4410.S.

A Description

(1) This special provision describes profiling pavements with a non-contact profiler, locating areas of localized roughness, and determining the International Roughness Index (IRI) for each wheel path segment.

(2) Profile the final riding surface of all mainline pavements, bridges, approaches, and railroad crossings. Roundabouts, and pavements within 150 feet of the points of curvature of roundabout intersections, are excluded from the testing requirements of this provision.

(3) Pavements that are excluded from localized roughness according to C.5.2(1), bridges, and roundabout intersections are subject to engineer-directed straightedging according to the standard specifications. All other surfaces being tested under this provision are exempt from straightedging requirements.

B (Vacant)

C Construction

C.1 Quality Control Plan

(1) Submit a written quality control plan to the engineer at or before the pre-construction conference. Ensure that the plan provides the following elements:

1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of all quality control personnel.
2. The process by which quality control information and corrective action efforts will be disseminated to the appropriate persons. Include a list of recipients, the communication means that will be used, and action time frames.
3. The methods and timing used for monitoring and/or testing ride quality throughout the paving process.
4. The evaluation process that will be used to make improvements to the construction operations if poor ride quality is found during the process control testing.
5. The methods that will be used to ensure a smooth pavement transition when matching into existing surfaces such as bridges, bridge approaches, or railroad crossings.
6. The segment locations of each profile run used for acceptance testing.
7. The approximate timing of acceptance testing in relation to the paving operations.

C.2 Personnel

(1) Have a profiler operator, certified under the department's highway technician certification program (HTCP), operate the equipment, collect the required data, and document the results using the methods taught in the HTCP profiling course.

C.3 Equipment

(1) Furnish a profile-measuring device capable of measuring IRI from the list of department-approved devices published on the department's web site:

http://roadwaystandards.dot.wi.gov/standards/qmp/index.htm

(2) Unless the engineer and contractor mutually agree otherwise, arrange to have a calibrated profiler available when paving the final riding surface. Calibrate the profiler according to the manufacturer's recommendations. Provide the engineer with a copy of the most recent calibration results, signed by the certified profiler operator.

(3) Perform daily calibration verification of the profiler using test methods according to the manufacturer's recommendations. Notify the engineer prior to performing the calibration verification. If the engineer requests, arrange to have the engineer observe the calibration verification and operation. Maintain records of the calibration verification activities, and provide the records to the engineer upon request.

C.4 Testing

C.4.1 Run and Reduction Parameters

(1) Enter the equipment-specific department-approved filter settings and parameters listed on the department's ride web site.

C.4.2 Contractor Testing

(1) Operate profilers within the manufacturer's recommended speed tolerances. Perform all profile runs in the direction of travel. Measure the longitudinal profile of each wheel track of each lane. The wheel tracks are 6.0 feet apart and centered in the traveled way of the lane.

(2) Coordinate with the engineer to schedule profile runs for acceptance. The department may require testing to accommodate staged construction or if corrective action may be required.

(3) Measure the profiles of each standard or partial segment. Define primary segments starting at a project terminus and running contiguously along the mainline to the other project terminus. Field-locate the beginning and ending points for each profile run. When applicable, align segment limits with the sublot limits used for testing under the QMP Concrete Pavement specification. Define segments one wheel path wide and distinguished by length as follows:

1. Standard segments are 500 feet long.
2. Partial segments are less than 500 feet long.

(4) Treat partial segments as independent segments.

(5) The department will categorize each standard or partial segment as follows:

Segments with a Posted Speed Limit of 55 MPH or Greater	
Category	**Description**
HMA I	Asphalt pavement with multiple opportunities to achieve a smooth ride. The following operations performed under this contract are considered as opportunities: a layer of HMA, a leveling or wedging layer of HMA, and diamond grinding or milling of the underlying pavement surface.
HMA II	Asphalt pavement with a single opportunity to achieve a smooth ride.
HMA III	Asphalt pavement segments containing any portion of a bridge, bridge approach, railroad crossing, or intersection. An intersection is defined as the area within the points of curvature of the intersection radii.
PCC II	Concrete pavement including all gaps.
PCC III	Concrete pavement segments containing any portion of a bridge, bridge approach, railroad crossing, or intersection. An intersection is defined as the area within the points of curvature of the intersection radii.

Segments with Any Portion Having a Posted Speed Limit Less Than 55 MPH	
Category	**Description**
HMA IV	Asphalt pavement including intersections, bridges, approaches, and railroad crossings.
PCC IV	Concrete pavement including gaps, intersections, bridges, approaches, and railroad crossings.

C.4.3 Verification Testing

(1) The department may conduct verification testing (QV) to validate the quality of the product. A certified HTCP profiler technician will perform the QV testing. The department will provide the contractor with a listing of the names and telephone numbers of all verification personnel for the project.

(2) The department will notify the contractor before testing so the contractor can observe the QV testing. Verification testing will be performed independent of the contractor's QC work using separate equipment from the contractor's QC tests. The department will provide test results to the contractor within 1 business day after the department completes the testing.

(3) The engineer and contractor will jointly investigate any testing discrepancies. The investigation may include additional testing as well as review and observation of both the department's and contractor's testing procedures and equipment. Both parties will document all investigative work.

(4) If the contractor does not respond to an engineer request to resolve a testing discrepancy, the engineer may suspend production until action is taken. Resolve disputes as specified in C.6.

C.4.4 Documenting Profile Runs

(1) Compute the IRI for each segment and analyze areas of localized roughness using the ProVAL software. Within 5 business days after completing a final acceptance profile run, submit a copy of the ProVAL smoothness assurance report showing the IRI for each segment and the areas of localized roughness exceeding an IRI of 175 in/mile. The ProVAL software and department-specified inputs are available on the department's web site:

http://roadwaystandards.dot.wi.gov/standards/qmp/index.htm

(2) As part of the profiler software outputs and ProVAL reports, document the areas of localized roughness and the locations of individual features including construction joints, structure limits, design features, utility fixtures, and other features that might affect the department's evaluation of ride quality. Field-locate the areas of localized roughness prior to the engineer's assessment for corrective actions.

(3) Within 5 business days after completing profiling of the pavement covered under this special provision, unless the engineer and contractor mutually agree to a different timeline, submit the electronic ProVAL project file containing the .ERD files for each profiler acceptance run. Submit profile data using the department's Materials Reporting System (MRS) software available on the department's web site:

http://www.atwoodsystems.com/mrs

C.5 Corrective Actions

C.5.1 General

(1) Correct the ride as the engineer directs. The department will independently assess whether a repair will help or hurt the long-term pavement performance and/or public perception of the ride before deciding on corrective action.

C.5.2 Corrective Actions for Localized Roughness

(1) Apply localized roughness requirements to all pavements, including HMA III, PCC III, HMA IV, and PCC IV; except localized roughness requirements will not be applied to pavements within 25 feet of the following surfaces if they are not constructed under this contract: bridges, bridge approaches, or railroad crossings. The department may direct the contractor to make corrections to the pavement within the 25-foot exclusionary zones and will compensate the contractor for the extra work.

(2) The engineer will review each individual wheel track for areas of localized roughness. The engineer will assess areas of localized roughness that exceed an IRI of 175 in/mile and do one of the following for each location:

1. Direct the contractor to correct the area to minimize the effect on the ride.
2. Leave the area of localized roughness in place with no pay reduction.
3. Except for HMA IV and PCC IV segments, assess a pay reduction as follows for each location in each wheel path:

Localized Roughness IRI (in/mile)	Pay Reduction[1] (dollars)
> 175	(Length in Feet) x (IRI – 175)

[1] A maximum $250 pay reduction may be assessed for locations of localized roughness that are less than or equal to 25 feet long. Locations longer than 25 feet may be assessed a maximum pay reduction of $10 per foot.

(3) The engineer will not direct corrective action or assess a pay reduction for an area of localized roughness without independent identification of that area as determined by physically riding the pavement. For corrections, use only techniques the engineer approves.

(4) Re-profile corrected areas to verify that the IRI is less than 140 in/mile after correction. Submit a revised ProVAL smoothness assurance report for the corrected areas to validate the results.

C.5.3 Corrective Actions for Excessive IRI

(1) If an individual segment IRI exceeds 140 in/mile for HMA I, HMA II, and PCC II pavements after correction for localized roughness, the engineer may require the contractor to correct that segment. Correct the segment final surface as follows:

HMA I:	Correct to an IRI of 60 in/mile using whichever of the following methods the engineer directs: Mill and replace the full lane width of the riding surface excluding the paved shoulder. Correct the full lane width using techniques approved by the engineer.
HMA II:	Correct to an IRI of 85 in/mile using whichever of the following methods the engineer directs: Mill and replace the full lane width of the riding surface excluding the paved shoulder. Correct the full lane width using techniques approved by the engineer.
PCC II:	Correct to an IRI of 85 in/mile using whichever of the following methods the engineer directs: Continuous diamond grinding of the full lane width of the riding surface including adjustment of the paved shoulders Correct the full lane width using techniques approved by the engineer.

(2) Re-profile corrected segments to verify that the final IRI meets the above correction limits and there are no areas of localized roughness. Submit a revised ProVAL smoothness assurance report for the corrected areas to validate the results. Segments failing these criteria after correction are subject to the engineer's right to adjust pay for non-conforming work under standard spec 105.3.

C.6 Dispute Resolution

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate testing procedures, and perform additional testing.

(2) If the project personnel cannot resolve a dispute and the dispute affects payment or could result in incorporating nonconforming pavement, the department will use third party testing to resolve the dispute. The department's Quality Assurance Unit, or a mutually agreed on independent testing company, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent tester. The department may use third party tests to evaluate the quality of questionable pavement and determine the appropriate payment.

D Measurement

(1) The department will measure Incentive IRI Ride by the dollar, adjusted as specified in E.2.

E Payment

E.1 Payment for Profiling

(1) Costs for furnishing and operating the profiler, documenting profile results, and correcting the final pavement surface are incidental to the contract.

E.2 Pay Adjustment

(1) The department will pay incentive for ride under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
440.4410.S	Incentive IRI Ride	DOL

(2) Incentive payment is not limited, either up or down, to the amount the schedule of items shows.

(3) The department will administer disincentives for ride under the Disincentive IRI Ride administrative item.

(4) The department will not assess disincentive on HMA III or PCC III segments. Incentive pay for HMA III and PCC III segments will be according to the requirements for the category of the adjoining segments.

(5) The department will adjust pay for each segment based on the initial IRI for that segment before any corrective action is taken. The department will base disincentives on the IRI after correction for pavement meeting the following conditions:

All Pavement:	The corrective work is performed in a contiguous, full lane width section 500 feet long, or a length as agreed with the engineer.
HMA Pavements:	The corrective work is a mill and inlay or full depth replacement and the inlay or replacement layer thickness conforms to standard spec 460.3.2.
Concrete Pavements:	The corrective work is a full depth replacement and conforms to standard spec 415.

(6) The department will adjust pay for 500-foot long standard segments nominally one wheel path wide using equation "QMP 1.03" as follows:

HMA I	
Initial IRI (inches/mile)	**Pay Adjustment[1] (dollars per standard segment)**
< 30	250
≥ 30 to <35	1750 – (50 x IRI)
≥ 35 to < 60	0
≥ 60 to < 75	1000 – (50/3 x IRI)
≥ 75	-250

HMA II and PCC II	
Initial IRI (inches/mile)	**Pay Adjustment[1] [2] (dollars per standard segment)**
< 50	250
≥ 50 to < 55	2750 – (50 x IRI)
≥ 55 to < 85	0
≥ 85 to < 100	(4250/3) – (50/3 x IRI)
≥ 100	-250

HMA IV and PCC IV	
Initial IRI (inches/mile)	**Pay Adjustment[1] [2] (dollars per standard segment)**
< 50	250
≥ 50 to < 75	750 – (10 x IRI)
≥ 75	0

[1] If the engineer directs placing upper layer asphaltic mixtures between October 15 and May 1 for department convenience as specified in standard spec 450.3.2.1(5), the department will not adjust pay for ride on pavement the department orders the contractor to place when the temperature, as defined in standard spec 450.3.2.1(2), is less than 36 F.

[2] If the engineer directs placing concrete pavement for department convenience, the department will not adjust pay for ride on pavement the department orders the contractor to place when the air temperature falls below 35 F.

(7) The department will prorate the pay adjustment for partial segments based on their length.

440-010 (20100709)

90. Concrete Staining B-40-433, Item 517.1010.S.0001; Concrete Staining R-40-475, Item 517.1010.S.0002; Concrete Staining R-40-476, Item 517.1010.S.0003; Concrete Staining R-40-477, Item 517.1010.S.0004.

A Description

Furnish and apply a two coat concrete stain to the exposed concrete surfaces of the structure, as detailed in the plans and as hereinafter provided.

B Materials

B.1 Mortar

Use mortar for sack rubbing the concrete surfaces as given in standard spec 502.3.7.5 or use one of the following products:

Preblended, Packaged Type II Cement:	Tri-Mix by TK Products
	Thoroseal Pearl Gray by Thoro Products

The mortar shall contain one of the following acrylic bonding admixtures mixed and applied in accordance to manufacturer's recommendations:

Acrylic Bonding Admixture:	TK-225 by TK Products
	Achro 60 by Thoro Products
	Achro Set by Master Builders

B.2 Concrete Stain

Use concrete stain manufactured for use on exterior concrete surfaces, consisting of a base coat and a pigmented sealer finish coat. Use the following products, or equal as approved by the department, as part of the two coat finish system:

Tri-Sheen Concrete Surfacer, Smooth by TK Products
Tri-Sheen Acrylic by TK Products
TK-1450 Natural Look Urethane Anti-Graffiti Primers by TK Products
Safe-Cure and Seal EPX by Chem Masters
H + C Shield Plus by Sherwin-Williams

C Construction

C.1 General

Furnish, prepare, apply, cure, and store all materials in accordance to the product manufacturer's specifications for the type and condition of application required.

Match or exceed the stain manufacturer's minimum recommended curing time of the concrete or 28 days, whichever is greater, prior to staining.

C.2 Preparation of Concrete Surfaces

Provide a sack rubbed finish in accordance to standard spec 502.3.7.5, using mortar as indicated above on concrete surfaces with open voids or honeycombing.

Following the sack rubbing, clean all concrete surfaces that are to be coated to ensure that the surface is free of all laitance, dirt, dust, grease, efflorescence, and any foreign material and that the surface will accept the coating material according to product requirements. As a minimum, clean the surface using a 3000-psi water blast. Hold the nozzle of the water blaster approximately 6 inches from the concrete surface and move it continuously in a sweeping motion. Give special attention to smooth concrete surfaces to produce an acceptable surface texture. Correct any surface problems resulting from the surface preparation methods. Grit blasting of the concrete surface is not allowed.

C.3 Staining Concrete Surfaces

Apply the concrete stain in accordance to the manufacturer's recommendations.

Apply the concrete stain when the temperature of the concrete surface is 45º F or higher, or as given by the manufacturer.

The color of the stain shall be as given on the plan. Tint the base coat to match the finish coat; the two coats shall be compatible with each other.

Do not begin staining the structure until earthwork operations are completed to a point where this work can begin without receiving damage. Where this work is adjacent to exposed soil or pavement areas, provide temporary covering protection from overspray or splatter.

C.4 Test Areas
Prior to applying stain to the structure, apply the stain to sample panels measuring a minimum of 48-inches x 48-inches and constructed to demonstrate workmanship in the use of the form liner specified on the structure if applicable. Match or exceed the stain manufacturer's minimum recommended curing time of the concrete or 28 days, whichever is greater, prior to staining. Prepare the concrete surfaces of the sample panels and apply stain using the same materials and in the same manner as proposed for the structure, including staining of the joints between the stones produced by the form liner if applicable. Do not apply stain to the structure until the department approves the test panels.

C.5 Surfaces to be Coated.
Apply concrete stain to the surfaces in accordance to the plan.

D Measurement
The department will 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-40-433	SF
517.1010.S.0002	Concrete Staining R-40-475	SF
517.1010.S.0003	Concrete Staining R-40-476	SF
517.1010.S.0004	Concrete Staining R-40-477	SF

Payment is full compensation for furnishing and applying the two coat system; for preparing the concrete surface; and for preparing the sample panels.
517-110 (20100709)

91. Cover Plates Temporary, Item 611.8120.S.

A Description
This special provision describes furnishing, installing and removing a steel plate to cover and support asphaltic pavement and traffic loading at manholes, inlets and similar structures during milling and paving operations.

B Materials
Provide a 0.25-inch minimum thickness steel plate that extends to the outside edge of the existing masonry.

C (Vacant)

D Measurement
The department will measure Cover Plates Temporary as units, acceptably completed in place.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
611.8120.S	Cover Plates Temporary	Each

Payment is full compensation for furnishing, installing, and removing the cover plates.

The steel plates shall become the property of the contractor when no longer needed in the contract work.
611-006 (20030820)

92. Pipe Grates, Item 611.9800.S.

A Description
This special provision describes furnishing and installing pipe grates on the ends of pipes as shown in the plans, and as hereinafter provided.

B Materials
Furnish steel conforming to the requirements of standard spec 506.2.2.1. Furnish steel pipe conforming to the requirements of standard spec 506.2.3.6.

Furnish pipe grates galvanized according to ASTM A123.

Furnish angles and brackets galvanized according to ASTM A123.

Furnish required hardware galvanized according to ASTM A153.

C Construction
Repair pipes, rods, angles and brackets on which the galvanized coating has been damaged in accordance to the requirements of AASHTO M36M.

D Measurement
The department will measure Pipe Grates in units of work where one unit is one grate, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
611.9800.S	Pipe Grates	Each

Payment is full compensation for furnishing and installing all materials; and for drilling and connecting grates to pipes.
611-010 (20030820)

93. Fence Temporary, Item 616.0600.S.

A Description
This special provision describes furnishing, erecting, and removing temporary fencing at the locations shown on the plans and as directed by the engineer.

B (Vacant)

C Construction
Construct fence to the minimum strength and height required to contain livestock, as approved by the engineer.

D Measurement
The department will measure Fence Temporary in place by the linear foot from end posts, center to center, along the ground line.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
616.0600.S	Fence Temporary	LF

Payment is full compensation for furnishing all materials; erecting posts and fence; and for removing and disposing of fencing.
616-025 (20101008)

94. Fence Track Clearance, Item 616.0800.S.

A Description
This special provision describes construction of a plastic fence at locations specified in the plan.

B Materials
Provide notched conventional metal “T” or “U” shaped fence posts.

Provide fence fabric that meets 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 diamond mesh
Service Temperature:	-60° F to 200° F (ASTM D648)
Tensile Yield:	Avg. 2000 lbs per 4 feet width (ASTM D638)
Ultimate Yield:	Avg. 2900 lbs per 4 feet width (ASTM D638)
Elongation at Break (%):	Greater than 100% (ASTM D638)
Chemical Resistance:	Inert to most chemicals and acids

C Construction

C.1 Track Clearance Fences

Erect track clearance fences prior to construction. Locate the fence approximately 15 feet west of the centerline of the west track when north of the existing overpass structure, and approximately 15 feet east of the centerline of the east track when south of the existing overpass structure. Run the fence continuously from approximately 120 feet to approximately 470 feet beyond the north and south edges of the existing overpass structure, respectively.

Prior to driving posts, arrange with the railroad company and utility owners to have any buried signal cable, fiber optic lines or other underground facilities located and marked where the fence is to be placed. Place the posts to avoid underground facilities.

Drive posts into the ground 12 to 18 inches, and space posts at 7.0 feet. Secure the fence at each post with a minimum of three wire ties. Weave tension wire through the top row of strands to provide a top stringer to prevent sagging.

Overlap two rolls at a post and secure with wire ties.

Where buried facilities or subsurface conditions do not permit driving posts, support posts by some other means that will provide stability comparable to driven posts.

D Measurement

The department will measure Fence Track Clearance in length by the linear feet along the base of the fence, center to center of posts.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
616.0800.S	Fence Track Clearance	LF

Payment is full compensation for underground facility locating and marking services by the railroad and utility owners; furnishing and installing fence and posts; maintaining the fence and posts in satisfactory condition at all times; and for removing and disposing of fence and posts at the completion of the project.
616-050 (20050502)

95. Sign Supports Concrete Masonry.

Add the following to standard spec 636.3.2:

(3) The contractor is responsible for drilling or excavating and maintaining a stable open excavation for subsequent installation of drilled footings for sign structure foundations as shown in the plans. The subsurface conditions vary across the project site and are not necessarily the same at each sign structure foundation in the project. Anticipate the possibility of encountering randomly interlaced seams of loose, permeable sand or gravel of substantial thickness situated within glacial clays and till deposits; saturated soils; ground water; isolated cobbles or boulders; and nested cobbles and boulders at any sign structure foundation when selecting equipment and methods for drilling or otherwise excavating. Partial or full depth temporary casing may be required to maintain the stability of the excavation prior to placement of reinforcement and filling the excavation with concrete.

Add the following paragraph to standard spec 636.3.3:

(8) For drilled foundations, no more than 3 inches of standing water is permitted in the bottom of the drilled excavation immediately prior to placing concrete masonry in the excavation.

96. Pavement Marking Grooved Wet Reflective Contrast Tape 4-Inch, Item 646.0841.S; 8-Inch, Item 646.0843.S.

A Description
This special provision describes furnishing, grooving and installing preformed wet reflective pavement marking contrast tape for grooved applications as shown on the plans, according to standard spec 646, and as hereinafter provided.

B Materials
Furnish wet reflective pavement marking contrast tape and adhesive material, per manufacturer's recommendation if required, from the department's approved products list.

Furnish a copy of the manufacturer's recommendations to the engineer before preparing the pavement marking grooves.

C Construction

C.1 General

For quality assurance, provide the project engineer and the region's Marking Section evidence of manufacturer training in the proper placement and installation of pavement marking contrast tape.

Plane the grooved lines according to details in the plan and per manufacturer's recommendations. Use grooving equipment with a free-floating, independent cutting head. Plane a minimum number of passes to create a grooved surface per manufacturer's recommendations.

C.2 Groove Depth

Cut the groove to a depth of 120 mils ± 10 mils from the pavement surface or, if tined, from the high point of the tined surface. To measure the depth, the contractor may use a depth plate placed in the groove and a straightedge placed across the plate and groove, or the contractor may use a straightedge placed perpendicular to the groove. The department may periodically check groove depths.

C.3 Groove Width – Longitudinal Markings

Cut the groove one-inch wider than the width of the tape.

C.4 Groove Position

Position the groove edge according to plan details. Groove a minimum of 4 inches, but not greater than, 12 inches from both ends of the tape segment. Achieve straight alignment with the grooving equipment.

C.5 Groove Cleaning

C.5.1 Concrete

Cooling the cutting head with water may be necessary for some applications and equipment. If cooling water is necessary, flush the groove immediately with high-pressure water after cutting to remove any build-up of cement dust and water slurry. If this is not done, the slurry may harden in the groove.

If water is used in the grooving process, allow the groove to dry a minimum of 24 hours after groove cleaning, and prior to pavement marking application. The groove surface shall be clean and dry before applying the adhesive, and the pavement marking tape. Use a high-pressure air blower with at least 185 ft^3/min air flow and 120 psi air pressure to clean the groove; use of the air blower does not decrease the amount of time required for the groove to dry.

C.5.2 New Asphalt

Groove pavement five or more days after paving.

Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove.

C.5.3 Existing Asphalt
Check for structural integrity in supporting grooving operations. If the structural integrity of the asphalt pavement is inadequate to support grooving operations, immediately notify the engineer.

Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove.

C.6 Tape Application
Apply the tape when both the air and surface temperature are 40 degrees F and rising.

Apply tape in the groove as per manufacturer's recommendations. If manufacturer's recommendations require surface preparation adhesive

- For the Southeast Region and the ozone non-attainment Northeast Region counties of Sheboygan, Manitowoc, and Kewaunee:
- Apply SPA-60 during May 1 to September 30, both dates inclusive due to Volatile Organic Compound Limitations..
- Apply P-50 during October 1 to April 30, both dates inclusive. –
- For the remainder counties:
- Apply either adhesive.

Refer to the manufacturer's instructions for determining when the surface preparation adhesive is set.

Tamp the wet reflective pavement marking contrast tape with a tamper cart roller, with a minimum of a 200-lb load, cut to fit the groove. Tamp a minimum of three complete cycles (6 passes) with grooved modified tamper roller cart.

D Measurement
The department will measure Pavement Marking Grooved Wet Reflective Contrast Tape (Width) for grooved applications in length by the linear foot of tape placed according to the contract and accepted.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
646.0841.S	Pavement Marking Grooved Wet Reflective Contrast Tape 4-Inch	LF
646.0843.S	Pavement Marking Grooved Wet Reflective Contrast Tape 8-Inch	LF

Payment is full compensation for cleaning and preparing the pavement surface; furnishing and installing the material; and for removing temporary pavement marking, if necessary.
646-022 (20120615)

97. Install Conduit Into Existing Item, Item 652.0700.S.

A Description
This special provision describes installing proposed conduit into an existing manhole, pull box, junction box, communication vault, or other structure.

B Materials
Use nonmetallic conduit, as provided and paid for under other items in this contract. Furnish backfill material, topsoil, fertilizer, seed, and mulch conforming to the requirements of pertinent provisions of the standard specifications.

C Construction
Expose the outside of the existing structure without disturbing existing conduits or cabling. Drill the appropriate sized hole for the entering conduit(s) at a location within the structure without disturbing the existing cabling and without hindering the installation of new cabling within the installed conduit. Fill void area between the drilled hole and conduit with an engineer-approved filling material to protect against conduit movement and entry of fill material into the structure. Tamp backfill into place.

D Measurement
The department will measure Install Conduit Into Existing System by the unit, acceptably installed. Up to five conduits entering a structure per entry point into the existing structure will be considered a single unit. Conduits in excess of five, or conduits entering at significantly different entry points into the existing pull box, manhole, or junction box will constitute multiple units of payment.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
652.0700.S	Install Conduit Into Existing Item	Each

Payment is full compensation for excavating, drilling holes; furnishing and installing all materials, including bricks, coarse aggregate, sand, bedding, and backfill; for excavating and backfilling; and for furnishing and placing topsoil, fertilizer, seed, and mulch in disturbed areas; for properly disposing of surplus materials; and for making inspections.
652-070 (20100709)

98. 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 according to standard spec 652.

Furnish a cabinet identification plaque as shown in the construction detail.

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 shown in the plans, and according to the applicable requirements of standard spec 652.

Install the cabinet identification plaque as shown in the construction detail.

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; furnishing and installing a cabinet identification plaque, and for furnishing all testing.

99. Install Ethernet Switch, Item 675.0400.S.

A Description
This special provision describes installing an Ethernet switch, and providing all necessary associated wiring.

B Materials
The department will furnish the Ethernet switch. Provide all necessary cables between the Ethernet switch and terminal server or other device.

C Construction
Install the Ethernet switch in a new or existing field cabinet. Connect it to devices as shown on the plans, or as directed by the engineer.

D Measurement
The department will measure Install Ethernet Switch by the unit, installed according to the contract, tested, and accepted.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
675.0400.S	Install Ethernet Switch	Each

Payment is full compensation for installing an Ethernet switch; furnishing all necessary incidental hardware; and making all necessary connections.
675-040 (20100630)

100. Removing Advance Flasher Assemblies Type 1, Item 676.9001.S.

A Description
Remove advance flasher assemblies at the locations shown on the plan. Rewire and disconnect all wiring in the control cabinet as necessary and properly dispose of materials, according to the pertinent provisions of standard spec 204 and as hereinafter provided.

B Materials
Dispose of all materials resulting from removing the Advance Flasher Assemblies including but not limited to poles, break-a-way bases, signal assemblies, bulbs, and wire off the job site.

C Construction
Do not remove existing advance flasher assemblies until proper disconnects and wiring changes in the controller cabinet have been made.

Where an existing advance flasher assembly is mounted to a light pole, remove all signal hardware including wire, conduit, signal assemblies and mounts. Where existing conduit has been installed under concrete sidewalk or roadway, do not remove buried conduit unless directed otherwise by the engineer or unless it is not possible to install new wire through the existing conduit.

D Measurement
The department will measure Removing Advance Flasher Assemblies (Type) by the unit, acceptably removed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
676.9001.S	Removing Advance Flasher Assemblies, Type 1	Each

Payment is full compensation for removing advanced flasher assemblies; for rewiring, as necessary; for disconnecting wiring as necessary in the controller cabinet; and for properly disposing of all materials.

Removal of concrete bases and signs associated with this item will be measured and paid for separately.
676-900 (20100630)

101. Install Video Encoder, Item 677.0300.S.

A Description
This special provision describes installing a state-furnished video encoder in a pole mounted cabinet or field cabinet as shown on the plans and as hereinafter provided.

B Materials
Provide Category 5 or better Ethernet cable to connect the Ethernet video encoder to the Ethernet switch. The department will furnish the video encoder or it will be an existing and salvaged encoder.

C Construction
Make the necessary electrical and communication network connections to the video encoder. Mount the video encoder in the pole mounted cabinet or field cabinet. Program the video encoder according to the manufacturer's instructions.

D Measurement
The department will measure Install Video Encoder by 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
677.0300.S	Install Video Encoder	Each

Payment is full compensation for installing the video encoder in a pole mounted cabinet or field cabinet; for making all connections; and for furnishing all programming.
677-030 (20100630)

102. Removing CCTV Camera, Item 677.9200.S.

A Description
This special provision describes removing an existing CCTV camera from an existing camera pole as described in the plan.

B (Vacant)

C Construction
Disconnect all wiring at the control cabinet and at the top of the camera pole. Remove all fastening hardware and remove the existing camera and pan, tilt, and zoom mechanisms from the top of the pole. Salvage and store the cameras for pick up by the department; contact maintenance staff at (414) 227-2166 at the department's Statewide Traffic Operations Center to coordinate when the materials will be picked up.

The contractor may request a meeting with the engineer to assess the condition and operability of the camera prior to beginning work on removing the camera. Any damage or improper operation not noted at the meeting, or prior to the contractor starting work on the removal, will be assumed to be the fault of the contractor; repair or replace the camera at no additional cost to the department. Store the camera until the department picks up the camera.

D Measurement
The department will measure Removing CCTV Camera by the unit, acceptably and completely removed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
677.9200.S	Removing CCTV Camera	Each

Payment is full compensation for removing an existing CCTV camera; for disconnecting all necessary cables and wiring; and properly storing the materials.
677-902 (20100630)

103. Rootstock Protection, SPV.0005.0010.

A Description
This special provision describes furnishing, installing, and maintaining Rootstock Protection according to the plan, and as directed by the engineer. Install Rootstock Protection prior to the rootstock planting. Maintain rootstock protection through the life of the contract, as needed, or within 24 hours of notification by the engineer.

B Materials
Use posts consisting of 1 inch by 2 inch by 5 foot wooden stakes. Use cross members consisting of biodegradable, natural organic fiber bailing twine.

C Construction
Install posts at a minimum of 2 feet into the ground or to a depth that secures the post and resists being pushed over. Install Rootstock Protection in such a manner as to provide a grid-like patterns 10 feet by 20 feet through the area of the rootstock plantings. Extend the perimeter of the Rootstock Protection a minimum of 5 feet in all directions beyond the limits of the rootstock plantings. Attach bailing twine for cross members to all posts as shown in the plan. Attach bailing twine to the posts using knots or any other means approved by the engineer such that no more than 3 cross members may be affected if any one cross member breaks or becomes unattached. Attach bailing twine attached to all intermediate posts by means approved by the engineer.

D Measurement
The department will measure Rootstock Protection, in accordance to Standard Specifications, Section 109.1.2.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0005.0010	Rootstock Protection	ACRE

Payment is full compensation for furnishing all materials, installing all posts, and cross members; disposal of surplus materials; and for maintaining the Rootstock Protection through the life of the contract.

104. Riprap Medium Special, Item SPV.0035.0010.

A Description

This special provision describes furnishing and placing Riprap Medium Special as shown on the plans.

B Materials

Furnish materials in accordance to the pertinent provisions of standard spec 606.2 and as hereinafter provided.

B.1 Riprap Stone

Furnish durable native Wisconsin glacial boulders that are sound, hard, dense, resistant to the action of air and water, and free of seams, cracks, or other structural defects. Use native Wisconsin glacial boulders with a length and width no more than twice the thickness. The average boulder dimensions shall meet the ranges for medium riprap in accordance to standard spec 606.2.1. Waste concrete slabs cannot be substituted for stone.

At least 15 working days prior to the start of placing Riprap Medium Special, supply five sample stones ranging between 8 inches and 16 inches to be approved by the engineer. Do not place material without the engineer's approval of the stone quality, size, shape, and color.

C Construction

Perform work in accordance to the pertinent provisions of standard spec 606.3 and as shown on the plans.

D Measurement

The department will measure Riprap Medium Special by the cubic yard placed and acceptably completed, measured as the volume within the limiting dimensions the contract designates or the engineer establishes 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.0035.0010	Riprap Medium Special	CY

Payment is full compensation for providing sample stones, preparing the bed, providing and placing riprap, restoring adjacent work, and disposing of surplus material. The department will pay for excavation in excess of the approximate volume of earth occupied by the riprap under the Excavation Common bid item as specified under standard spec 205.5.

105. Lightweight Foamed Concrete Fill Grade 2, Item SPV.0035.4010.

A Description

A.1 General

This special provision describes designing, providing and placing Lightweight Foamed Concrete Fill, hereafter referred to as LFCF material, for backfill and embankments at locations designated on the plans.

A.2 Terms

Whenever in this article the following terms are used, the intent and meaning shall be interpreted as follows:

LFCF Manufacturer – The manufacturer of the foam agent used to make LFCF.

LFCF Installer – The subcontractor responsible for batching, and mixing the LFCF onsite, and placing the LFCF in accordance to the contract documents.

Contractor – General contractor as defined in the standard specifications.

B Materials

B.1 General

Furnish materials meeting the following requirements:

Portland Cement and Portland Pozzolan Cement	Standard spec 501.2.1
Water	Standard spec 501.2.4
Air Entraining Admixtures	Standard spec 501.2.2
Water Reducing Admixtures	Standard spec 501.2.3
Set Retarding Admixtures	Standard spec 501.2.3
Curing Materials	Standard spec 502.2.6
Fly Ash	Standard spec 501.2.6
Dampproofing	Standard spec 516.2.1

Pozzolans and admixtures (for accelerating, water reducing, retaining, improving the bond, etc.) may only be used if specifically designated and approved by the LFCF manufacturer.

B.2 LFCF Material Specifications

The foaming agent from the selected manufacturer will produce a Lightweight Foamed Concrete Fill Material, complying with the specifications in Table 1 below.

Table 1 – LFCF Material Requirements

Property	Grade 2	Test Method
Cast Density (after pumping)	44.0 - 50.0 pcf	ASTM C 796
Maximum Dry Density	46.0 pcf	ASTM C 796
Minimum Dry Density	40.0 pcf	ASTM C 796
Unconfined Compressive Strength	25 psi minimum at 24 hours curing 120 psi minimum at 28 days curing	ASTM C 796
Frost Heave	< 0.5 in	British Road Research Laboratory, Lab Report LR 90, 1967, by Croney, Jacobs. Sample @ 250 hr exposure, 4.5 inches high x 4 inch dia.
Freeze-Thaw Resistance – minimum cycles @ relative E = N/N ≥ 70% per ASTM C666* as modified below	Relative Young's Modulus, E ≥ 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 30 pcf material (3°F to 37°F and 37°F to 3°F including the requirement that it be completed in 50% of the time period) is estimated to last approximately 10 hours.

C Construction

C.1 Submittals

C.1.1 LFCF Placement Plan

Submit a LFCF quality control and placement plan. Place the abutment backfill and embankment in accordance to the information provided in the submitted, accepted plan. No later than two weeks prior to LFCF placement, submit the plan to the engineer for review and comment. Do not begin LFCF production before the plan has been reviewed and accepted by the engineer. The submitted plan shall provide, as a minimum, the following elements:

1. An organizational chart including names, telephone numbers, current certifications and/or titles, and roles and responsibilities of all those involved with the quality control program.
2. The process of communication by which quality control information will be disseminated to the appropriate persons**,** including materials suppliers. This shall include a list of recipients, the communication means that will be used, action time frames**,** and report formats.
3. Materials list of items proposed to be provided under this section.
4. Specifications, catalog cuts, and other engineering data needed to demonstrate compliance with the specified requirements.
5. Proof of LFCF installer's compliance with the requirements in section C2, to include a list of projects with completion date, owner's name and phone number, and contact person.
6. Mix designs for the LFCF, prepared by the LFCF manufacturer or installer, showing compliance with the specified properties.
7. Certification of batch, mixing and placing equipment by the LFCF installer meeting the requirements of section C.3 hereinafter.
8. Written documentation that LFCF installer is certified by and approved by the foam agent manufacturer.
9. LFCF curing procedures.

C.1.2 Trial Batch Design and Testing

At least two weeks prior to placement, prepare a trial batch and submit trial batch testing results showing that the proposed LFCF material properties comply with the requirements of this specification. The accepted trial batch mix design and tested properties will become the standard of the material furnished under this contract.

C.1.3 Quality Assurance Samples

At least two weeks prior to placing, submit 10 each 3-inch diameter by 6-inch high cylinder samples of the as-designed and tested LFCF to the department. Cover specimens after casting to prevent loss of moisture. Do not oven dry specimens. At the department's option, the samples may be tested for strength and density in accordance to the requirements of ASTM 495 and ASTM C796 to verify the submitted test results and validate the contractor's testing procedures and quality of the furnished product.

C.2 Personnel Requirements.
The Lightweight Foamed Concrete Fill installer, hereafter referred to as the LFCF installer, shall be certified by the manufacturer of the foaming agent and regularly engaged in the production and placement of the Lightweight Foamed Concrete Fill (LFCF). This shall include the completion of lightweight foamed concrete fills having a minimum of 10,000 total cubic yards in the past 5 years. Furthermore, the material shall have been successfully applied on at least three LFCF projects, consisting of mass fills for Federal and State highways, which have performed satisfactorily for at least five years.

The LFCF installer shall be certified and approved in writing by the foam agent manufacturer. The installer's foreman shall have a minimum of 2 years experience in this work and shall have worked on at least one of the three successful LFCF projects.

The LFCF installer shall use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are familiar with the specified requirements and the methods needed for proper performance of the work noted in this specification.

The foam agent manufacturer's representative (LFCF Manufacturer) shall be experienced in the placement of LFCF and shall be on site full-time during placement.

C.3 Equipment Requirements
The specialized batching, mixing, and placing equipment shall be automated and certified for this purpose by the manufacturer of the LFCF material. Bulk cement shall be weighed on a scale which operates within a tolerance of one half of one percent (0.5%) per batch. Foam shall be added and mixed at the site using the aforementioned equipment. Transit mixers and volumetric batching mixers are not acceptable.

C.4 Required Contractor Testing
The contractor is responsible for conducting acceptance testing and providing test results to the engineer prior to and during the installation of the LFCF.

C4.1 Cast Density of Field Installed LFCF
Test cast density in accordance to ASTM C 796

1. Prior to placement of the initial batch, the installer shall check the density and adjust the mix as required to obtain the manufacturer's specified cast density at point of placement.
2. At hourly intervals during placement, monitor the density and adjust as necessary to maintain the specified cast density.

C.4.2 Strength Testing
Conduct strength testing in accordance to ASTM C 796 except do not oven dry the test specimens.

1. Furnish a sufficient quantity of molded and cured cylinders measuring 3-inches in diameter by 6-inches high for required strength tests. Provide molds, and a similar curing environment of the LFCF being tested. Prepare cylinders in accordance to ASTM C1064.
2. Provide certified strength test results to the engineer for acceptance. At a minimum, conduct a set of three strength tests at 1, 2, and 28 day intervals for each 500 cubic yards of LFCF placed and a minimum of two sets of four cylinders each per day.

C.5 Laboratory Requirements

Perform the LFCF compressive strength testing at a department qualified laboratory. Information on the Wisconsin Laboratory Qualification Program may be obtained from the Quality Management Section, Wisconsin department of Transportation, Bureau of Highway Construction, Truax Center, 3502 Kinsman Blvd., Madison Wisconsin 53704; telephone (608) 266-3246; or on the internet at: www.dot.state.wi.us. If approved by the department, the compressive testing may also be conducted at the LFCF manufacturer's facility with test results reported as noted.

C.6 Placement

LFCF shall be a homogeneous mixture and all materials shall be approved prior to use.

Prepare the areas to be filled in accordance to standard spec 206.3.8. Remove standing water in the test areas prior to placement of the LFCF. Ensure the LFCF remains above the water table at all times during construction.

Subgrade for LFCF fill will be prepared in accordance to standard spec 211.

Protect material before, during and after installation, and protect the work and materials of other trades. In the event of damage, immediately make replacements and repairs to the acceptance of the engineer at no additional cost to the department.

If the LFCF must be placed in freezing susceptible conditions, consult the manufacturer as to what precautions are necessary to assure installation of an acceptable LFCF. Do not place LFCF at a temperature of less than 32 degrees Fahrenheit, nor when freezing conditions are expected in less than 24 hours, unless precautions are taken to maintain temperatures above freezing. Do not place LFCF on frozen ground or material.

Cure LFCF in accordance to the accepted placement plan.

Proportion, mix, and place LFCF only using equipment approved by the manufacturer as indicated in the accepted LFCF placement plan. Once mixed, convey the LFCF concrete promptly to the location of placement without excessive handling.

Place LFCF in lifts not exceeding 24-inches in depth unless greater depths are allowed on the plans**.** Placing LFCF in thicker lifts increases the density of hardened LFCF from that of cast LFCF through collapse of the LFCF void structure. Any lifts exceeding the

maximum lift depth noted in this special provision or on the plans may be completed at the contractor's risk. Any material cast in excess of the maximum lift depth must be tested meeting the test frequency indicated in section C.4, but not less than one of each test per lift. Complete an additional test of hardened LFCF conforming to ASTM C597, for each density test required in section C.4, but not less than one test per lift. Any material cast in excess of the maximum lift depth that the contractor cannot prove through testing that it meets the minimum performance requirements (cast unit weight, hardened unit weight and strength) in this special provision shall be removed and replaced by the contractor at no additional cost to the department.

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 wall anchor zones, take special care when scarifying to not disturb the alignment of or physically damage the wall reinforcing. 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 to the department.

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 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.

The final surface finish of LFCF shall be within $\pm$ 0.1 foot of the elevations shown on the plans. Slope to promote drainage as indicated on the plans.

Paving machines, heavy construction equipment or other unusual loading of the LFCF shall not be permitted until it has attained the specified 28-day compressive strength and the loading is approved by the engineer.

Sawing or ripping of the LFCF for utilities, underdrain or other conflicts will be by methods approved by the engineer. Backfill such cuts and excavations into the LFCF to the original top of LFCF elevation using the same grade of LFCF material that was removed.

C.7 Dampproofing

Apply dampproofing conforming to standard spec 516 to the top surface and sides of the LFCF material at locations designated on the plans.

C.8 Acceptance

Rectify any LFCF material rejected by the engineer that does not meet the minimum required material properties or is not installed in accordance to this article. Corrective measures are subject to the approval of the engineer. Accepted corrected measures will be performed by the contractor at no additional cost to the department or extension of contract time. This includes removal and replacement of rejected LFCF material not meeting the minimum material requirements or installed in accordance to this article.

D Measurement

The department will measure Lightweight Foamed Concrete Fill Grade 2 by the cubic yard of LFCF material acceptably completed, 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.

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	Lightweight Foamed Concrete Fill Grade 2	CY

Payment is full compensation for preparation of written submittals; material testing; coordination and scheduling of LFCF placement; onsite LFCF Manufacturer representative, specialized equipment to mix, transport and place LFCF; providing and erecting forms; bond breakers; and for groundwater control and temporary shoring.

Dampproofing will be measured and paid for separately in accordance to section 516 of the standard specifications.

106. Detention Basin Clay Lining, Item SPV.0035.8001.

A Description

This section describes furnishing and installing clay lining to the interior surfaces of the detention basin.

B Materials

The clay material can be acquired on site or be furnished by the contractor from a borrow site. The contractor shall submit laboratory test results of the clay lining material from onsite or borrow source(s) documenting that the clay meets or exceeds the clay material specifications prior to the start of lining construction and prior to bringing borrow to the site. The laboratory tests shall be conducted on clay material from on site or borrow areas at the frequency listed below and be performed in accordance to ASTM standard methods as listed below. The test results shall be submitted to the engineer for review and approval prior to construction. The following tests are required:

- A minimum of 50 percent by weight which passes the 200 sieve.
- Liquid Limit (LL): 22 percent or greater.
- Plasticity Index (PI): 12 percent or greater.

Clay not meeting these three requirements shall be removed and disposed of by the contractor without additional payment.

In addition to the three above testing requirements, the contractor shall provide additional test results for any clay furnished to be used for informational purposes. These testing results are listed below.

Reference standards are listed as follows:

American Society for Testing and Materials (ASTM):

(1) **ASTM D698** Test for Moisture-Density Relations of Soils and Soil Aggregate Mixtures Using 5.5 lb Rammer and 12 in. Drop (Standard Proctor).
(2) **ASTM D2922** Test for Density of Soil In Place by Nuclear Method (Shallow Depth).
(3) **ASTM D1140** Test Method for Amount of Materials in Soils Finer than the No. 200 Sieve.
(4) **ASTM D422** Method for Particle-Size Analysis of Soils.
(5) **ASTM D4318** Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
(6) **ASTM D2487** Classification of Soils for Engineering Purposes.

Table of Testing for Clay

Test	Number of Required Tests: One Borrow Source Only and Also For Onsite Clay	Number of Required Tests: Multiple Borrow Sources	Minimum Requirement
Grain Size Analysis	3 (Total)	1 test/2,500 cy or less/site[(a)]	≥ 50% by Wt. Passing 200 Sieve
Hydrometer Analysis	3 (Total)	1 test/2,500 cy or less/site[(a)]	Info. Only
Atterberg Limits (ASTM D4318)	3 (Total)	1 test/2,500 cy or less/site[(a)]	LL ≥ 22% PI ≥ 12%
USCS Classification (ASTM D2487)	3 (Total)	1 test/2,500 cy or less/site[(a)]	Info. Only
Standard Proctor Analysis 5-Point Curve (Minimum) (ASTM D698)	2 (Total)	1 test/10,000 cy or less/site[(b)]	Info. Only
Permeability Test (use falling head method)	2 (Total)	1 test/10,000 cy or less/site[(b)]	1 x 10^{-7} cm/sec

[(a)] For each clay borrow site to be used, one test shall be performed and provided to engineer for each 2,500 cubic yards or less of clay to be obtained from each of the borrow sources.

[(b)] For each clay borrow site to be used, one test shall be performed and provided to engineer for each 10,000 cubic yards or less of clay to be obtained from each of the borrow sources.

C Construction

C.1 Clay Lining Placement

C.1.1 Detention Basin Subgrade

The detention basin subgrade shall be compacted to a minimum compaction of 95 percent of Standard Proctor Maximum Density (ASTM D-698) prior to placing any required detention basin lining material.

C.1.2 Erosion Protection

The detention basin lining shall not be placed until after all adjacent site grading has been completed and only after silt fence has been installed completely around the perimeter of the detention basin.

C.1.3 Clay Lining

After the rough grading is complete, the contractor shall undercut, place and compact approved clay material in four 6-inch lifts for a total compacted thickness of 2 feet, including a height of 1 foot above the normal detention basin elevation. Compacted clay lining shall be used for one pipe length along bedding material to a height of 6 inches above the normal detention basin elevation on all inlet and outlet pipes.

Contractor shall notify the engineer at least three days prior to start of placing clay lining.

Lift thickness shall be 6 inches maximum after compaction.

Clay lining shall be a minimum of two feet thick measured perpendicular to the surface.

Compact clay to a minimum of 98% Standard Proctor Maximum Density (ASTM D698) with a sheepsfoot roller or other suitable equipment.

Placement of each lift shall not proceed until all required clay testing and documentation has been completed for the previous lift.

The moisture content of the clay during placement shall be:

- No drier than 1 % below the optimum moisture content as determined by ASTM D698.
- No wetter than 3% above the optimum moisture content as determined by ASTM D698.

Excessively dry or wet clay soil shall be properly moisture-conditioned to within the above range of values.

Provide all equipment necessary to adjust clay to the proper moisture content for compaction.

The maximum permeability of constructed clay lining material and tested under Section B shall be $1x10^{-7}$ cm/sec.

The contractor is responsible for construction of the clay lining per the plans. If the in-place clay lining fails to meet the requirements of this section, the contractor shall be responsible for the following:

- Removing and replacing or reworking any portion of the clay lining not meeting the project specifications until project specifications are met.
- The contractor shall not be compensated for removing, replacing and reworking clay lining not meeting the specification requirements.

C.1.4 Testing of Constructed Soils
As construction of the clay lining proceeds, the department will provide all required on-site quality control testing of installed materials as follows:

- Record thickness of clay lining.
- Density testing (ASTM D2922) on after the clay is placed and compacted. One test per lift (minimum) or one test for every 25,000 sq. ft. of lift constructed, whichever is greater.
- HTCP certified person will perform all necessary sampling, testing, data analysis and documentation during all Pond Liner Clay placement and compaction.
- One Standard Proctor (ATM D698) for each soil type used but no less than one Proctor analysis for each 5,000 cubic yards of clay placed.
- After the lining is placed and compacted, one Shelby tube sample and bulk sample shall be retrieved and analyzed for the following:
- Grain size distribution and hydrometer analysis.
- Moisture content.
- Dry density.
- Atterberg Limits.
- Permeability.

The contractor shall provide the following:

- Access for on-site testing, inspection, and documentation.
- Machinery required to grade/blade density test locations.
- Machinery required to obtain undisturbed clay samples (i.e., with Shelby tubes).
- Replace and recompact clay material removed for testing purposes.

C.1.5 Detention Basin Dewatering
The contractor is responsible for the temporary lowering of the water table below the detention basin bottom during construction and testing of the detention basin as described in bid item Dewatering for Detention Basin Construction.

The water table elevation is variable across the detention basin area.

D Measurement
The department will measure Detention Basin Clay Lining 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.0035.8001	Detention Basin Clay Lining	CY

Payment is full compensation for furnishing, placing and compacting the detention basin clay lining.

107. Backfill Slurry, Item SPV.0035.8002.

A Description

This work shall consist of furnishing and placing backfill slurry in accordance to the pertinent requirements of standard spec 209 except as hereinafter modified.

B Materials

Use aggregates that conform with section 501 of the standard specifications 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.

C Construction

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. Completely fill excavation in a single operation. Consolidation or compaction effort will not be required. Twelve hours shall elapse before paving over the backfill.

D Measurement

The department will measure Backfill Slurry in volume by the cubic yard of material, acceptably completed. Such volume will be computed from dimensions of the area to be backfilled as shown in the construction details. 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 according to subsection 209.5 of the standard specifications under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0035.8002	Backfill Slurry	CY

Payment is full compensation for providing positive drainage of the area to be backfilled; and for furnishing and placing backfill slurry.

108. Concrete Slope Paving at Storm Sewer Outfall, Item SPV.0035.8003.

A Description
This section describes paving waterway embankment slopes at storm sewer outfall with concrete slope paving to control and prevent erosion of the slopes and waterways as shown on the plans.

B Materials
Conform to standard spec 604.2.

Furnish 4-inch thick Base Aggregate Dense 1 ¼-inch as base.

Furnish Grade A concrete conforming to standard spec 501.2 as modified in standard spec 716. Provide QMP for class III ancillary concrete as specified in standard spec 716.

C Construction
Conform to construction detail shown on the plan and standard spec 604.3.

D Measurement
The department will measure Concrete Slope Paving at Storm Sewer Outfall 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.0035.8003	Concrete Slope Paving at Storm Sewer Outfall	CY

Payment is full compensation for furnishing all excavating and backfilling required for preparing the paving foundation; for saw cutting and removing existing concrete slope paving; for disposing of surplus materials; for tie bars and drilling tie bars to existing concrete slope paving; for providing steel reinforcements; for providing Base Aggregate Dense; for providing all materials for concrete for mixing, placing, finishing, curing, and protecting concrete.

109. Temporary Crosswalk and Bus Stop Access, Item SPV.0045.0010.

A Description
This special provision describes furnishing, installing, and removing temporary surface material, gravel or base aggregate dense, barricades type III, and safety fence to maintain accessible crosswalks crossing the construction work zone and bus stops within the work zone in accordance to the plans and the standard specifications.

B Materials
Furnish a hard temporary surface material consisting of asphaltic surface temporary in accordance to standard spec 465, any grade of concrete, skid resistant steel plating, or

alternative material as approved by the engineer. Gravel or base course material is not acceptable for the landing zone. Gravel or base course is acceptable for the temporary sidewalk connection.

Furnish barricades type III conforming to the pertinent provisions of standard spec 643.2.4.

Furnish safety fence in accordance to the following:

- Furnish notched conventional metal “T” or “U” shaped fence posts.
- Furnish fence fabric meeting the following requirements.
- Color: International orange (UV stabilized)
- Roll Height: 4 feet
- Mesh Opening: 1 inch min to 3 inch max
- Resin/Construction: High density polyethylene mesh
- Service Temperature: -60° F to 200° (ASTM D648)
- Tensile Yield: Avg. 2000 lb per 4 ft. width (ASTM D638)
- Ultimate Tensile Strength: Avg. 3000 lb per 4 ft. width (ASTM D638)
- Elongation at Break (%): Greater than 100% (ASTM D638)
- Chemical Resistance: Inert to most chemicals and acids

C Construction

Install, maintain, move, and remove temporary surface material at Temporary Crosswalk and Bus Stop Access locations as directed by the engineer. Level and compact the surface prior to placing temporary surface material. The temporary crosswalk shall have a minimum clear width of 4 feet; be located outside the immediate work area, as approved by the engineer; and shall meet the requirements of the current Americans with Disabilities Act Accessibility Guidelines (ADAAG). Install safety fence along both sides of the temporary crosswalk as directed by the engineer. Reconstruct or relay Temporary Crosswalk and Bus Stop Access and reset safety fence when disturbed by construction operations or utility trenches.

Install safety fence as follows:

- 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 Temporary Crosswalk and Bus Stop Access by the day, acceptably completed. The measured quantity will equal the number of calendar days a temporary crosswalk through the work zone or bus stop within the work zone is open to pedestrian traffic. A crosswalk is defined as an accessible crossing of a single leg of an intersection. A crossing of a street with an island within the route will be considered a

single crosswalk. Each day that the crosswalk or bus stop is out of service for more than 2 hours will result in one day being deducted from the quantity measured for payment. Undisturbed crosswalks and bus stops on existing pavement or completed crosswalks on new pavement or completed bus stops will not be measured for payment.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0045.0010	Temporary Crosswalk and Bus Stop Access	Day

Payment is full compensation for furnishing, loading, hauling; for preparing the foundation; for furnishing, placing, maintaining, and removing temporary surface material; for reconstructing or relaying the temporary surface material; for furnishing, installing, and maintaining barricades type III; 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.

110. Removing Concrete Bollard, Item SPV.0060.0001.

A Description

This special provision describes removing concrete bollard in accordance to the pertinent provisions of standard spec 204 and as hereinafter provided. Remove all items part of the existing concrete bollard above existing surface elevation. Remove all materials below existing ground to an elevation of five feet below proposed surface elevation, or as specified by the engineer. Dispose of all removed material at an offsite location. This includes but is not limited to piling, concrete foundation, conduit, wiring, and fasteners.

B (Vacant)

C Construction

Complete all necessary operations to remove the concrete bollard. Backfill all holes and pits not occupied by the new pavement and base course with suitable fill material conforming to standard spec 209.

D Measurement

The department will measure Removing Concrete Bollard 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.0060.0001	Removing Concrete Bollard	Each

Payment is full compensation for removing concrete bollard; for furnishing all excavating; for placing and compacting backfill material; and for disposing of materials.

111. Removing Sign Foundation, Item SPV.0060.0002.

A Description

This special provision describes removing existing business signs and their foundation concrete bases in accordance to the pertinent provisions of standard spec 204 and as hereinafter provided.

At least five working days prior to the start of removing sign foundation, contact property owner to arrange the pickup of salvaged signs and materials. Safely disconnect power to the sign and remove electrical appurtenances. Remove all items part of the existing concrete base above existing surface elevation. Salvage signs, plaques, brick, stone, nuts, bolts and all materials requested by the property owner. Remove all materials below existing ground to an elevation of 5 feet below proposed surface elevation, or as specified by the engineer. Dispose of all removed material at an offsite location. This includes but is not limited to piling, concrete foundation, bollards, conduit, wiring, and fasteners.

B (Vacant)

C Construction

Carefully remove signs and sign foundations. Avoid damaging salvaged materials and any utilities during construction operations. Do not use equipment or devices that might damage facilities. Complete all necessary operations to remove the sign foundation. Place salvaged materials in neat piles outside the construction limits but within right-of-way at locations approved by the engineer. Backfill all trenches, holes, and pits not occupied by the new pavement and base course with suitable fill material conforming to section 209 of the standard specifications. Arrange with the property owner to pick up salvaged signs and materials within five business days.

D Measurement

The department will measure Removing Sign Foundation 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.0060.0002	Removing Sign Foundation	Each

Payment is full compensation for breaking down and removing sign foundation as outlined in this specification; for contacting the property owner; for disconnecting power; for furnishing all excavating; for placing and compacting backfill material; for furnishing all required salvaging; for disposing of all materials not required for salvaging that were encountered during removing sign foundation; and for repairing all damage.

112. Exposing Existing Utility, Item SPV.0060.0003.

A Description

This work includes exposing existing utilities which are in direct conflict with proposed facilities. The location of existing utilities not in direct conflict with proposed construction is not included and shall be addressed using standard utility location procedures. The work includes exposing existing utilities under paved and unpaved surfaces, and providing both lateral and depth measurements for use in determining potential utility conflict solutions.

B Materials

B.1 Granular Backfill

Furnish granular backfill that conforms to standard spec 209.

B.2 Slurry Backfill

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.

C Construction

C.1 General

Submit all requests for exposing existing utilities in writing to the engineer for approval prior to performing the work. Coordinate utility exposures with the engineer and notify the utility owner or their agents of this work two working days in advance so that they may be present when the work commences.

C.2 Excavation

Remove all paved and unpaved surfaces at locations where the existing utility is being exposed. Saw or remove concrete and asphaltic pavements to the nearest joint. Remove all pavement surfaces in such a way that all existing edges consist of a true line having a perpendicular edge with no unraveling. Maintain drainage at all times in accordance to standard spec 205.3.3. Take precautions, including temporary shoring, in order to prevent any undermining of the existing roadway. Perform work in accordance to all applicable laws, ordinances, rules, regulations, and OSHA standards.

Expose all utility locations within a given location to a minimum depth of 18-inches below the bottom of each utility. Excavate in a manner that protects the integrity of the utilities and prevents any damage to wrappings or protective coatings such as by any mechanical method or hand digging. Notify the utility owner promptly if damage or interruption of service occurs. Repair all damage caused to such utilities resulting from negligence or carelessness on the part of the contractor's operation at contractor expense.

Take all lateral and depth measurements in US feet and tenths thereof. Identify horizontal locations of each exposed utility with a coordinate northing and easting referenced to the Wisconsin County Coordinate System (WCCS), Milwaukee County Zone, NAD 83 (2007). Provide vertical elevations for each exposed utility and reference to NAVD 88 (2007).

The utility location shall remain exposed and available for visual inspection until the completion of all work in a given location. If the utility 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 utility exposure, restore the location in kind to its original condition. Use granular backfill, conforming to standard spec 209, to backfill the exposed utility locations to the subgrade elevation except for areas located within local streets. All granular material placed to an elevation of 18-inches above each exposed utility shall consist substantially of sand with all particles retained on a one-inch (25.0 mm) sieve removed. The remaining granular material shall conform to the specifications for backfill for trench excavation. When exposed utility 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.

Place base aggregate dense between the subgrade surface and the bottom of the pavement. In grassy areas, place 4-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 utility locations tied to known features in the plans. Each utility shall be referenced to a proposed alignment with a station and offset. The size and/or diameter, composition, and a description of each utility shall be documented and the location of the elevation with respect to each utility noted. Supply digital photographs of the uncovered utility to the engineer in .jpeg format for future reference.

D Measurement

The department will measure Exposing Existing Utility as a unit for each location, acceptably completed. A location may have multiple utilities located within the same exposure area. An exposure area will include all utilities within 6 lateral feet of each other and payment will only be made for one unit regardless of the number of utilities

exposed. If the distance from the existing ground elevation, located above the existing utility, to a point 18-inches below the exposed utility 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 utility, to a point 18-inches below the exposed utility is greater than 6-feet and less than 12 feet, the department will pay for the item as two units of work. Exposures in depth greater than 12-feet are not covered under this 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.0060.0003	Exposing Existing Utility	Each

Payment is full compensation for sawing all pavement; for removing all pavement; for furnishing all excavation; for disposing of all materials; for locating all utilities within each respective location; for providing documentation and photographs of utility locations to the engineer; for furnishing all surveying associated with exposing existing utilities; for furnishing all maintenance of the location during construction; for furnishing all traffic control, safety barriers, and steel plating required; for furnishing and placing granular backfill and slurry backfill; and for temporary shoring. All finishing items including, but not limited to, base aggregate dense, concrete pavement, HMA pavement, curb and gutter, and sidewalk located above the subgrade elevation will be paid for using other contract items.

113. Landmark Reference Monument Special, Item SPV.0060.0004.

A Description

Coordinate with Southeast Wisconsin Regional Planning Commission (SEWRPC) and provide a backfilled hole for placement of a section corner monument.

B Materials

SEWRPC will provide a pre-cast monument for the section corners.

Furnish base aggregate dense materials that conform to standard spec 305.

C Construction

SEWRPC will perpetuate existing section corner landmarks. Contact Kurt Bauer or Donald Simon at SEWRPC at (262) 547-6721 two weeks before starting construction operations to allow for section corner perpetuation.

SEWRPC will install a pre-cast monument for the section corners. Contact SEWRPC at (262) 547-6721 two weeks prior to paving operations to coordinate installation of the monument. Provide a 2-foot diameter by 3-foot deep hole backfilled with base aggregate dense in the location of the section corner location.

D Measurement
The department will measure Landmark Reference Monument 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.0060.0004	Landmark Reference Monument Special	Each

Payment is full compensation for furnishing all excavating; for placing and compacting backfill material; for disposing of surplus materials; and for furnishing all coordination with SEWRPC.

114. Hydro Excavation, Item SPV.0060.0005.

A Description
This specification covers the Hydro Excavation of existing utility facilities under unpaved surfaces beyond the curb and pavement structure prior to roadway excavation for the purpose of determining utility location and elevations.

B Materials
Granular Backfill
Furnish granular backfill that conforms to standard spec 209.

C Construction
C.1 General
Contractor shall have equipment capable of excavating holes up to 12 feet deep, in all types of soil.

Submit all requests for Hydro Excavation in writing to the engineer for approval prior to performing the work. Coordinate Hydro Excavation for utility exposures with the engineer and notify the utility owner or their agents of this work two business days in advance so that they may present when the work commences.

Do not use Hydro Excavation within the pavement structure including lanes, curb and gutter, and shoulders.

C.2 Excavation
Remove all unpaved surfaces at Hydro Excavation locations. Maintain drainage at all times in accordance to standard spec 205.3.3. Perform work in accordance to all applicable laws, ordinances, rules, regulations, and OSHA standards.

Notify the utility owner promptly if damage or interruption of service occurs. Repair all damage caused to such utilities resulting from negligence or carelessness on the part of the contractor's operation at contractor expense.

The utility location shall remain exposed and available for visual inspection until the completion of all work in a given location. If the utility 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 Hydro Excavation, restore the location in kind to its original condition. Use granular backfill, conforming to standard spec 209, to backfill the hydro excavated utility locations to existing grade.

D Measurement
The department will measure Hydro Excavation as a unit for each location, acceptably completed. A location may have multiple utilities located within the same exposure area. Payment will only be made for one unit regardless of the number of utilities exposed. The distance from the existing ground elevation, located above the existing utility, to a point up to 18-inches below the exposed utility will pay single 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
SPV.0060.0005	Hydro Excavation	Each

Payment is full compensation for furnishing all excavation; for disposing of all materials; for water including heated water for frozen ground; for furnishing all maintenance of the location during construction; for furnishing all traffic control, safety barriers, and steel plating required; and for furnishing and placing granular backfill.

115. Pavement Marking Grooved Preformed Thermoplastic Arrows Type 1, Item SPV.0060.0010; Arrows Type 2, Item SPV.0060.0011; Arrows Type 3, Item SPV.0060.0012; Arrows Type 6, Item SPV.0060.0013; Arrows Type 7, Item SPV.0060.0014; Words, Item SPV.0060.0015.

A Description
This special provision describes grooving the pavement surface, and furnishing and installing preformed thermoplastic pavement marking as shown on the plans, in accordance to standard spec 647, and as hereinafter provided.

B Materials
Furnish preformed thermoplastic pavement marking and sealant material, if required, from the department's approved products list.

C Construction

C.1 General

For quality assurance, provide the engineer and the region's Marking Section evidence of manufacturer training in the proper placement and installation of preformed thermoplastic pavement marking.

Plane the grooved lines in accordance to the plan details. Use grooving equipment with a free-floating, independent cutting or grinding head. Plane a minimum number of passes to create a smooth groove.

C.2 Groove Depth

Cut the groove to a depth of 120 mils ±10 mils deeper than the thermoplastic thickness, from the pavement surface or, if tined, from the high point of the tined surface. Measure depth using a straightedge placed perpendicular to the groove. The department may periodically check groove depths.

C.3 Groove Width – Linear Markings

Cut the groove 1-inch wider than the width of the thermoplastic.

C.4 Groove Position

Position the groove edge in accordance to the plan details.

C.4.1 Linear Marking

Groove at a minimum of 4-inches, but not greater than, 12-inches from both ends of the line segment. Achieve straight alignment with the grooving equipment.

C.4.2 Special Marking

Groove a box around the special marking up to 4 inches from the perimeter of the special marking.

C.5 Groove Cleaning

C.5.1 Concrete

Cooling the cutting head with water may be necessary for some applications and equipment. If cooling water is necessary, flush the groove immediately with water after cutting to remove any build-up of cement dust and water slurry. If this is not done, the slurry may harden in the groove.

If water is used in the grooving process, allow the groove to dry a minimum of 24 hours after groove cleaning, after removal of excess water, and prior to pavement marking application. Clean and dry the groove for proper application of the sealant, and placement of the pavement marking. Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove; use of the air blower does not decrease the amount of time required for the groove to dry.

C.5.2 New Asphalt
Groove pavement 10 or more days after paving. Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove.

C.5.3 Existing Asphalt
Check for structural integrity in supporting grooving operations. If the structural integrity of the asphalt pavement is inadequate to support grooving operations, immediately notify the engineer.

C.5.4 Asphalt
Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove.

C.6 Preformed Thermoplastic Application
Preheat the surface if necessary based on manufacturer's recommendation.

Application of the preformed thermoplastic in the groove without sealant will be as follows:

- May 1 to September 30, both dates inclusive – the Southeast Region and the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.
- June 1 to August 31 – the Southwest Region, and the Northeast, North Central, and Northwest Regions except for the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.

Application of the preformed thermoplastic in the groove with sealant materials will be as follows:

- October 1 to April 30, both dates inclusive – the Southeast Region and the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.
- September 1 to May 31, both dates inclusive – the Southwest Region and the Northeast, North Central, and Northwest Regions, except for the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.

The sealant must be wet.

D Measurement
The department will measure Pavement Marking Grooved Preformed Thermoplastic (Type) by each individual unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0010	Pavement Marking Grooved Preformed Thermoplastic Arrows Type 1	Each
SPV.0060.0011	Pavement Marking Grooved Preformed Thermoplastic Arrows Type 2	Each
SPV.0060.0012	Pavement Marking Grooved Preformed Thermoplastic Arrows Type 3	Each
SPV.0060.0013	Pavement Marking Grooved Preformed Thermoplastic Arrows Type 6	Each
SPV.0060.0014	Pavement Marking Grooved Preformed Thermoplastic Arrows Type 7	Each
SPV.0060.0015	Pavement Marking Grooved Preformed Thermoplastic Words	Each

Payment is full compensation for cleaning and preparing the pavement surface, furnishing and installing the material.

116. Traffic Control Flexible Tubular Marker Bases Left In Place, Item SPV.0060.0016.

A Description
This special provision describes furnishing, installing, and maintaining Flexible Tubular Marker Bases Left In Place as shown on the plans.

Flexible Tubular Marker Bases Left In Place becomes property of the department after final acceptance by the engineer.

B Materials
Use materials in accordance to the pertinent provisions of standard spec 643.2.5 and as hereinafter provided.

C Construction
Perform work in accordance to the pertinent provisions of standard spec 643.3, as shown on the plans, and as hereinafter provided.

D Measurement
The department will measure Flexible Tubular Marker Bases Left In Place as each individual base installation left in place, acceptably completed. The department will measure replacing damaged bases by each base replaced.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0016	Traffic Control Flexible Tubular Marker Bases Left In Place	Each

Payment is full compensation for providing, installing, and maintaining the flexible tubular marker bases. The department will not pay to replace bases inadequately secured to the pavement.

117. Traffic Control Flexible Tubular Marker Posts Left In Place, Item SPV.0060.0017.

A Description
This special provision describes furnishing, installing, and maintaining Flexible Tubular Marker Posts Left In Place as shown on the plans.

Flexible Tubular Marker Posts Left In Place becomes property of the department after final acceptance by the engineer.

B Materials
Use materials in accordance to the pertinent provisions of standard spec 643.2.5 and as hereinafter provided.

C Construction
Perform work in accordance to the pertinent provisions of standard spec 643.3, as shown on the plans, and as hereinafter provided.

D Measurement
The department will measure Flexible Tubular Marker Posts Left In Place as each individual base installation left in place, acceptably completed. The department will measure replacing damaged posts by each post replaced.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0017	Traffic Control Flexible Tubular Marker Posts Left In Place	Each

Payment is full compensation for providing, installing, and maintaining the flexible tubular marker posts.

118. Traffic Control Barricades Type III Left In Place, Item SPV.0060.0018.

A Description
This special provision describes furnishing, installing, and maintaining Traffic Control Barricades Type III Left In Place as shown on the plans.

Traffic Control Barricades Type III Left In Place becomes property of the department after final acceptance by the engineer.

B Materials
Use materials in accordance to the pertinent provisions of standard spec 643.2.4 and as hereinafter provided.

C Construction
Perform work in accordance to the pertinent provisions of standard spec 643.3, as shown on the plans, and as hereinafter provided.

D Measurement
The department will measure Traffic Control Barricades Type III Left In Place as each individual barricade left in place, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0018	Traffic Control Barricades Type III Left In Place	Each

Payment is full compensation for providing, installing, and maintaining the traffic control barricades Type III.

119. Traffic Control Warning Lights Type A Left In Place, Item SPV.0060.0019.

A Description
This special provision describes furnishing, installing, and maintaining Traffic Control Warning Lights Type A Left In Place as shown on the plans.

Traffic Control Warning Lights Type A Left In Place becomes property of the department after final acceptance by the engineer.

B Materials
Use materials in accordance to the pertinent provisions of standard spec 643 and as hereinafter provided.

C Construction
Perform work in accordance to the pertinent provisions of standard spec 643.3.5.2, as shown on the plans, and as hereinafter provided.

D Measurement
The department will measure Traffic Control Warning Lights Type A Left In Place as each individual working light left in place, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0019	Traffic Control Warning Lights Type A Left In Place	Each

Payment is full compensation for providing, installing, and maintaining the traffic control warning lights Type A.

120. Traffic Control Signs Left In Place, Item SPV.0060.0020.

A Description
This special provision describes furnishing, installing, and maintaining Traffic Control Signs Left In Place as shown on the plans.

Traffic Control Signs Left In Place becomes property of the department after final acceptance by the engineer.

B Materials
Use materials in accordance to the pertinent provisions of standard spec 643.2.9 and as hereinafter provided.

C Construction
Perform work in accordance to the pertinent provisions of standard spec 643.3, as shown on the plans, and as hereinafter provided.

D Measurement
The department will measure Traffic Control Signs Left In Place as each individual sign, left in place, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0020	Traffic Control Signs Left In Place	Each

Payment is full compensation for furnishing, installing, and maintaining the traffic control signs.

121. Shallow Marsh Rootstock, Item SPV.0060.0110.

A Description
This special provision describes furnishing and planting wetland herbaceous plant rootstock of the species specified, complete in the Shallow Marsh as designated on the plans or as directed by the engineer. It also includes furnishing all necessary materials and performing all necessary work such as excavating plant holes, anchoring rootstock, performing necessary care, such as trimming, and required replacements pending acceptance, and doing such work necessary and incidental thereto to complete the item in accordance to the plans, specifications and contract.

B Materials

The source of all plant materials is nursery-grown stock, not wild-collected, from an area not to exceed 150 linear miles from the project site and within the State of Wisconsin. All plants must be healthy, 1 to 2 years old, and have well-developed root systems. Plants that show evidence of mold, rot, freezing, or frost damage will be rejected. When evidence is submitted that a specified rootstock cannot be obtained, substitutions may be made with the specific approval of the engineer and wetland ecologist.

Shallow Marsh Planting Zone (0.25 Acre);
Mayfair Pond (0.12 acre), Hotel Pond (0.13 acre)

Scientific Name	Common Name	Mayfair Pond	Hotel Pond	Total
Scirpus atrovirens	green bulrush	20	22	42
Scirpus fluviatilis	river bulrush	105	114	219
Scirpus validus	soft stem bulrush	16	17	33
Sparganium eurycarpum	giant bur reed	15	16	31
Total		156	169	**325**

C Construction

C.1 General

Install plants in the shallow marsh prior to any seeding and mulching operations and within the specified planting periods. Care should be taken to minimize disturbance of the Shallow Marsh. Provide the engineer with 5 working days notice of the intended date of delivery of rootstock to the project site. Present all rootstock to the engineer for inspection and partial acceptance prior to planting.

C.2 Care

Handle all rootstock with care and skill to prevent damage and pack all rootstock in a manner to ensure arrival at the project site in good condition. Keep the rootstock moist and cool prior to planting. Do not disturb freshly installed plants with subsequent activities that would cause injury or uprooting. Properly care for all plants, from the time of planting until final acceptance of the work under the contract.

C.3 Timing of Planting

Install wetland rootstock on the day of delivery at the project site. In the event that this is not possible, temporarily store plants by placing them in a well-ventilated, cool, shaded, moist storage space. This storage period shall not exceed 48 hours. Plant rootstock between May 1 and June 15, or after November 1 and prior to November 15.

C.4 Planting Layout

Install plants at a density of approximately 1300 plants per acre (spacing approximately one plant per 3 feet) as shown on the plans or as directed by the engineer.

C.5 Planting Method

Install plants by hand with the use of a tree spud or other comparable method, or as directed by the engineer.

D Measurement
The department will measure Shallow Marsh Rootstock by each individual plant, 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.0060.0110	Shallow Marsh Rootstock	Each

Payment is full compensation for furnishing, delivering, storing, and planting the plants.

122. Lamp Disposal High Intensity Discharge, Item SPV.0060.1010.

A Description
This special provision describes the packaging and delivering of high intensity discharge (mercury vapor, metal halide, and high-pressure sodium) lamps removed under this contract to the department for disposal as hazardous materials.

B Materials
Lamps turned in to the department will be considered the property of the department for proper future disposal, and the contractor will have no further obligation for their disposal.

C Construction
Pack intact lamps in the packaging of the new lamps used to replace them, or packaging affording the equivalent protection. Place in full, stackable cartons with the name of the contractor written on each carton. Segregate the lamps by type and wattage. Label each carton by the type and wattage contained (do not mix) and the quantity.

Pack broken lamps into thick plastic bags and place inside sturdy cardboard boxes or the equivalent. Mark the outer packaging with the term "broken lamps". Deliver all broken lamps to the department.

The department will not accept lamps improperly packaged or packed in metal containers. The department will reject any lamps not removed as part of this contract as shown on the plans.

Pile cartons no more than two high if palletized and secure them to prevent shifting or falling of the loads.

Deliver the lamps to the department at the South 60th Street office in West Allis. Consolidate all deliveries into a truckload or more, except when all the lamps removed under a contract measure less than a truckload, deliver as one load at one time. Contact Mike Prebish at (414) 266-1170, Monday through Thursday from 8:00 AM to 4:00 PM to set up an appointment for delivery.

D Measurement
The department will measure Lamp Disposal High Intensity Discharge as each individual unit delivered to the department properly packaged and delivered. The department will not measure broken lamps that exceed a total of ten percent of all lamps to be delivered.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1010	Lamp Disposal High Intensity Discharge	Each

Payment is full compensation for handling, packaging, and labeling and delivering the lamps.

Payment will be in addition to payment for the work under which the lamps are removed from service.

123. Salvaging Light Poles Luminaires and Arms, Item SPV.0060.1020.

A Description
The work under this item shall consist of removing lighting pole, arm and luminaires from the locations shown in the plans, and reinstalling pole at a new location as shown in the plans, in accordance to the applicable provisions of standard spec 204, 655 and 659 or delivering the units to a specific location.

B (Vacant)

C Construction
Inspect the pole prior to removing from the existing base. Inform the engineer of any items of concern or potential problems that may interfere with the reuse of the pole, arm or luminaire. Minimize the time between removal from the existing base and reinstallation on the new base. Bases will be paid as a separate item and are not included herein.

Poles and arms for SL61, SL62, SL63, SL64, SL65 and SL66 shall be turned over to the City of Wauwatosa while the respective luminaires are to be reinstalled. Deliver the poles and arms to the City of Wauwatosa Electrical Yard. Contact Mr. Joseph Kroll at 414-471-8492.

Deliver poles ELE21, ELE22, ELE27, ELE33, ELE34/ELE35, ELE36/ELE37 and ELE38/ELE39 to the DOT at the West Allis Electrical Shop, (935 South 60th Street). Contact Mr. Mike Prebish at (414) 266-1170.

D Measurement
The department will measure Salvaging Light Poles Luminaires and Arms by each individual light pole, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1020	Salvaging Light Poles Luminaires and Arms	Each

Payment is full compensation for furnishing all the work required under this bid item.

124. Salvaging Luminaires - Wauwatosa, Item SPV.0060.1023.

A Description
The work under this item consists of removing existing lighting units as shown on the plans. Removal of pole, luminaire arms, transformer bases (if present) and concrete base (if not direct embedment) and removal of the used lamp from the luminaire will be paid under separate bid items. The luminaire shall be turned over and delivered to the City of Wauwatosa. Coordinate turning over the luminaires with Mr. Joe Kroll, phone number (414) 479-8934. Units shall be uninstalled, handled, packaged and delivered in a manor that does not damage the luminaire.

B (Vacant)

C Construction
Lamps shall be turned in to the department under a separate item, Lamp Disposal High Intensity Discharge, SPV.0060.1010 and luminaires shall be returned to the City of Wauwatosa. Dispose of all additional materials off site.

D Measurement
The department will measure Salvaging Luminaires - Wauwatosa 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.0060.1023	Salvaging Luminaires - Wauwatosa	Each

Payment is full compensation for furnishing all work and disposal of material.

125. Removing Aluminum Light Poles and Arms, Item SPV.0060.1031.

A Description
The work under this item shall consists of removing aluminum light poles and arms as shown on the plans. The concrete base removal will be under a separate bid item. The luminaires shall be removed and turned over to the City of Wauwatosa. The salvaging of the luminaires will be paid under a separate bid item Salvaging Luminaires - Wauwatosa, SPV.0060.1023.

B (Vacant)

C Construction
Dispose of all materials offsite. Do not disable the lighting unit until the temporary lighting system over the area is operational.

D Measurement
The department will measure Removing Aluminum Light Poles and Arms as each individual removed pole and associated arms, 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.0060.1031	Removing Aluminum Light Poles and Arms	Each

Payment is full compensation for furnishing all work and disposal of material.

126. Removing Concrete Light Poles and Arms, Item SPV.0060.1032.

A Description
The work under this item shall consists of removing concrete light poles and arms as shown on the plans. The luminaires shall be removed and turned over to the City of Wauwatosa. The salvaging of the luminaires will be paid under a separate bid item Salvaging Luminaires - Wauwatosa, SPV.0060.1023.

B (Vacant)

C Construction
Dispose of all materials offsite. Backfill the resulting hole from the pole extraction with a suitable material for the location. Do not disable the lighting unit until the temporary lighting system over the area is operational.

D Measurement
The department will measure Removing Concrete Light Poles and Arms as each individual removed pole and associated arms, 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.0060.1032	Removing Concrete Light Poles and Arms	Each

Payment is full compensation for furnishing all work and disposal of material.

127. Wood Pole Lighting 60-Foot, Item SPV.0060.1035.

A Description

The work under these items include furnishing and installing 60-foot wood pole, arm(s) and floodlight(s), junction box, grounding system, and lightning protection system, as shown on the plans, in accordance to standard spec 651 and 659, and as hereinafter provided.

B Materials

Furnish wood poles, Class 4 or larger with a 60-foot minimum overall length. The poles shall be western red cedar in accordance to ANSI standards 05.1. Pressure treatment shall be 5% pentachlorophenol with a minimum of 8 pounds per cubic foot net retention of the oil-borne preservative. All poles shall be shaved the entire length.

Luminaire arm and luminaire for wood pole lighting units and temporary wood pole lighting units shall be per standard spec 657.2.3 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 items.

C Construction

This work shall be done in accordance to the pertinent provisions of standard spec 611.3.1.1 and as shown on the plans. Install #4 AWG equipment grounding wire exothermically bonded to a 5/8 inch by 8 foot copper clad grounding electrode. Install cable guard, NEMA 3R junction box near mounting arm, and NEMA 4X junction box at 3 feet above grade for fuses and splice on wood pole units. Install air terminal with #2 AWG grounding wire exothermically bonded to a 5/8-inch by 8-foot copper clad grounding electrode for lightning protection. Install #2 AWG bare copper exothermically bonding between grounding electrodes. Install conduit and wiring between junction boxes, wire racks, and required hardware as necessary and as shown on lighting plans and detail drawings.

Install luminaire arm for wood pole lighting units as shown on the plans and details and as per applicable portion of standard spec 657.3 and 659.3.

D Measurement

The department will measure Wood Pole Lighting 60-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.0060.1035	Wood Pole Lighting 60-Foot	Each

Payment is full compensation for furnishing and installing items as mentioned above; and for furnishing all excavation and backfill.

128. Wood Pole 60-Foot, Item SPV.0060.1036.

A Description

Furnish and install wood poles and other incidental items as required and as shown on the plans, in accordance to standard spec 651, and as hereinafter provided. Remove and dispose of temporary wood poles, 40 FT as a part of this item.

B Materials

Furnish wood poles that are Class 4 or larger with a 60-foot minimum overall length. The poles shall be western red cedar in accordance to ANSI standards 05.1. All poles shall be shaved the entire length.

Wood poles used for freeway lighting shall be pressure treated with a 5 percent pentachlorophenol mixture with a minimum of 8 pounds per cubic foot net retention of the oil-borne preservative.

C Construction

Install the pole in accordance to the pertinent provisions of standard spec 611.3.1.1, 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 Wood Pole 60-Foot as each individual installed pole 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.0060.1036	Wood Pole 60-Foot	Each

Payment is full compensation for furnishing and installing a wood pole; and for all excavation and backfill.

129. Removing 60-Foot Wood Poles and Floodlights, Item SPV.0060.1040.

A Description

Remove 60-foot wood pole lighting units and attached conduit and wiring as shown on the plans and in accordance to standard spec 204, remove mast arm or bracket arm, luminaire, air terminal, and junction box, backfill openings or holes to the elevation of the surrounding ground, and landscape all disturbed areas from these removals. Separate payment will be made for lamp disposal.

B (Vacant)

C Construction
Dispose of all materials except lamps off site. Deliver the lamps to the department under a separate bid item, Lamp Disposal High Intensity Discharge, SPV.0060.1010.

The department will allow, at the contractor's discretion, to reuse removed wood pole lighting units at new location, if possible. The bid price is to reflect the salvage value of the removed wood pole lighting unit. The department will allow, at the contractor's discretion, to reuse removed temporary wood pole lighting units at new location, if possible.

D Measurement
The department will measure Removing 60-Foot Wood Poles and Floodlights by each individual removed unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1040	Removing 60-Foot Wood Poles and Floodlights	Each

Payment is full compensation for removing wood pole lighting units; all excavation and backfill; and for removal and disposal of material.

130. Removing 60-Foot Wood Poles, Item SPV.0060.1041.

A Description
Remove 60-foot wood poles as shown on the plans.

B (Vacant)

C Construction
In addition to removing the attached conduit and wiring in accordance to standard spec 204, backfill all openings or holes to the elevation of the surrounding ground, and landscape all disturbed areas from these removals. Dispose of all materials off site.

D Measurement
The department will measure Removing Wood Poles 60-Foot as each individual removed 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.0060.1041	Removing Wood Poles 60-Foot	Each

Payment is full compensation for removing wood pole; all excavation and backfill; and for removal and disposal of material.

131. LED Luminaire, Item SPV.0060.1060.

A Description

This special provision describes furnishing and installing LED luminaires at the locations shown in the plan.

B Materials

B.1 Material Qualifications

Furnish a complete list of documentation in accordance to standard spec 651.2 and the following requirements. Be prepared to provide the following materials and/or data to the engineer and the City of Wauwatosa Public Works, Joe Kroll, 11100 W. Walnut Road, Wauwatosa, WI, (414) 471-8422, jkroll@wauwatosa.net, for review and approval:

One example luminaire matching what is proposed for use on the project. Example luminaire shall be available for evaluation for up to two weeks time. Furnish the following list of specific documentation detailing the characteristics of the LED luminaire:

- Fixture IES files (.ies format) for illumination modeling
- Cut sheets, warranty information and parts list for all equipment.
- Luminaire heat dissipation techniques.
- Energy usage information.
- Color spectrum with HID lamp comparison.
- Optical design features.
- Two references from municipalities currently using the same luminaires.

Do not order materials until the engineer approves the list.

B.2 Luminaire

Furnish LED luminaires with a slim, low profile design that minimizes wind loading. Luminaires shall be constructed of rugged cast and extruded aluminum with integral, weather-tight LED driver components with high performance aluminum heat-sinks. Each luminaire shall use a terminal block for power input suitable for #2 to #14 AWG wire. Luminaire shall be IESNA Type III Medium distribution without backlight control. The luminaire shall designed to mount on a 2” IP (2.375” O.D.) horizontal tenon and shall be adjustable +/- 5 degrees to allow for leveling. Luminaire shall include a leveling bubble visible from the underside of the unit.

B.2.1 Electronic Components

Luminaire shall accommodate varied lighting output from high brightness, 4300K (+/- 500K per full unit), minimum 70 CRI, long life LED sources. Drivers shall operate across 120-277V, 50/60 Hertz as standard. LED drivers shall have a power factor greater than 90% and THD less than 20% of full load. All luminaires shall come

equipped with an integral 9kV surge suppression protection standard and a quick disconnect harness suitable for mate and break under load provided on power feed to driver for ease of maintenance.

B.2.2 Optical / Illumination Performance
Luminaire shall conform to the following:

- Luminaire tested and certified by an independent test laboratory to meet the photometric performance criteria established by IESNA LM-79.
- Luminaire shall be IESNA Type III Medium distribution.
- Luminaire shall deliver approximately 10,000 lumens and be rated to consume no more than 175 watts (+/- 15%) while operating for a minimum of 70,000 hours (+/- 10%).
- Maximum nominal drive current of 350 Ma. Greater drive currents will not be accepted.

B.2.3 Finish
The luminaire fixture finish shall feature an epoxy primer with an ultra-durable silver powder topcoat, providing resistance to corrosion, ultraviolet degradation and abrasion. Alternative equivalent finishes shall be approved by the engineer.

B.2.4 Ratings / Certifications
Luminaires shall be rated and/or certified as follows:

- U.L. listed for wet locations
- RoHS compliant for lead and mercury standards
- IP-65 minimum weather fastness rating
- IDA dark sky full cutoff compliant

Acceptable LED luminaires are:

- BetaLED Model: STR-LWY-2M-43-12-D-UL-350-43K
- Phillips Model: RVM-125W112LED4K-LE3
- Holophane Model LEDG-108-35-4K-00-2H-L3

C Construction
Install LED Luminaire in accordance to the pertinent provisions of standard spec 659 and as the manufacturer directs.

D Measurement
The department will measure LED Luminaire as each individual LED luminaire, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1060	LED Luminaire	Each

Payment is full compensation for furnishing all materials; and for installing a complete luminaire.

132. Luminaires Floodlight 1000W HPS, Item SPV.0060.1070.

A Description

The work under this item shall consists of furnishing and installing 1000 watt HPS floodlight luminaires with photoelectric control, in a 240 Volt configuration. Luminaires shall to be installed in accordance to standard spec 659.

B Materials

Appropriate Floodlight Models include or approved equal:

- American Electric Lighting, Model 77X1SRNMT266TMLC1023PCSS
- Cooper Lighting, Model HPNKS1000LLOA/RA1016
- Lithonia, Model TFA1000SRBTBFTSC22PERLPI

Units shall have a 6X6 or 7X7 light distribution. Units shall have a photoelectric cell for control of the fixture operation.

C Construction

The contractor shall install the luminaire on the light poles at locations specified in lighting plan and in accordance to standard spec 659.2.1, 659.3.1, wired and fused in accordance to standard spec 659.3.2 and plan details. Luminaires shall be orientated (0 deg = North) as shown and at an angle of 45-degrees from the vertical

D Measurement

The department will measure Luminaires Floodlight 1000W HPS as each individual, luminaire acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1070	Luminaires Floodlight 1000W HPS.	Each

Payment is full compensation for furnishing all the work and materials required under this bid item.

133. Luminaires Floodlight 400W HPS, Item SPV.0060.1071.

A Description
The work under this item shall consist of furnishing and installing 400 Watt HPS floodlight luminaires, with photoelectric control, in a 240 Volt configuration and in accordance to section 659 of the standard specifications.

B Materials
Appropriate Floodlight Models include or approved equal:

- GE Turnpike, General Elec. Product Number: RPFS40S240VM2GLN3GRK.
- Holophane Predator, Holophane Product Number: PF-400HP-240V-BN1KR
- Lithonia Lighting, Lithonia Product Number: 170S 400S HPN 240V TS PER

Units shall have a 6x6 or 7x7 light distribution. Units shall have a photoelectric cell for control of the fixture operation.

C Construction
Install the luminaire on the light poles at locations specified in lighting plan in accordance to standard spec 659.2.1, and 659.3.1, and wired and fused in accordance to standard spec 659.3.2 and plan details. Luminaires shall be orientated (0 deg = North) as shown and at an angle of 45-degrees from the vertical. Units shall be suitable for mounting on the poles provided under bid item Poles Type A With Bullhorn Bracket.

D Measurement
The department will measure Luminaires Floodlight 400W HPS by each individual luminaire, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1071	Luminaires Floodlight 400W HPS	Each

Payment is full compensation for furnishing all the work and materials required under this bid item.

134. Salvage Distribution Centers, Item SPV.0060.1090.

A Description
The work under this item consists of removing distribution center from existing base at locations shown in the plans, and relocating it to a new base at location shown in plans, in accordance to standard spec 654 and 655. Concrete control cabinet base removal and installation will be measured and paid for under a separate bid items.

B Materials
Provide small parts, fittings, fasteners, connectors, splice kits, and other appurtenances that are needed to complete the installation and are approved by the engineer.

C Construction
Install and connect the distribution center as shown in the plans. Perform work to meet all applicable codes and conform to good electrical construction practices. The work shall include making all connections for a complete and operable lighting system.

Ground the chain link fence if shown in the plans and electrically bond the gates to the fence with flexible copper jumpers whenever fences are crossed by an underground utility high-voltage service lateral, whether existing or installed for this project.

Coordinate all necessary arrangements with the utility for removal of electrical service to old base and providing new secondary service at 240/480 VAC isolated neutral to new base on behalf of the State of Wisconsin, which will be the billing customer. The department will pay all required utility service extension fees. Minimize the time between removal from the existing base and reinstallation on the new base. Concrete base removal and installation will be paid for as a separate items and are not included herein. Work to include connections to power existing lights at the new location as shown in the plans. Provide temporary utility power or generators to maintain illumination on the highway during the transference between locations. Highway lighting shall be maintained during all nightly hours.

D Measurement
The department will measure Salvage Distribution Centers by each individual relocation, 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.0060.1090	Salvage Distribution Centers	Each

Payment is full compensation for removing, hauling, removing the original concrete base, temporary power and installing distribution cabinet; for making connections; for providing and installing all parts, fittings, fasteners, connectors, and splice kits, for fence grounding; for restoration of WE Energies rough backfill; and for coordination with the utility.

135. Distribution Center Lighting, Item SPV.0060.1110.

A Description
The work under this item consists of furnishing and installing 240/480 volt, 100 amp electrical service enclosure for power distribution. The distribution centers shall include but not limited to a NEMA 3R aluminum cabinet, 100 ampere rated panelboards, lighting

contactors with photoelectric control, as shown in the plans. Installations below grade shall be made available for inspection before being backfilled.

B Materials

All materials furnished by the contractor for highway lighting installation under this contract are subject to approval by the engineer.

The contractor shall furnish a complete list of materials to be furnished and used for roadway lighting. Such list shall include the names and addresses of manufacturers, together with catalog numbers, certificates of compliance, specifications, and other product information requested by the engineer. The list shall be submitted within ten calendar days of the award of the contract. No materials shall be incorporated into the lighting system prior to the written approval of the engineer. Approval does not change the intent of the specifications. The contractor shall not substitute or make changes in materials without resubmittal for approval.

Power cabinet enclosure shall be U.L. listed as NEMA 3R. The complete enclosure shall be constructed of 0.125"thick aluminum alloy type 5052-H32. All exterior seams shall be continuously welded. Both sides and back shall be provided with "C" channels for mounting of back panels. Enclosures shall be provided with a thermostatically controlled forced air fan system with filtered air vent. The enclosure outside surface shall have a smooth, uniform natural aluminum surface. The door shall have a continuous hinge with stainless steel pin and 3-point latching mechanism with provisions for padlocking in the closed position. The door shall be gasketed. All anchoring hardware shall be stainless steel. All wiring within cabinet shall in galvanized rigid steel conduit and shall conform to standard spec 651.

Load centers shall be in accordance to UL, NEMA, NEC, and as shown on the drawings. Provide standard manufactured products. All components of panelboards shall be the product and assembly of the same manufacturer. All similar units of all load centers to be of the same manufacturer. All panels shall be dead front safety type. Arrange sections for easy removal without disturbing other sections. All load centers shall be completely factory assembled with molded case circuit breakers. Panels shall have main breaker or main lugs, bus size, voltage, phase, top or bottom feed, and flush or surface mounting as scheduled on the drawings. Load centers shall have the following features:

- Nonreduced size copper bus bars, and connection straps bolted together and rigidly supported on molded insulators. Bus bar taps for panels with single pole branches shall be arranged for sequence phasing of branch circuit devices. Buss bars shall be copper.
- Full size neutral bar, mounted on insulated supports.
- Ground bar with sufficient terminals for all grounding wires.
- Buses braced for the available short circuit current, but not less than 12,000 amperes symmetrical.

- Design interior so that protective devices can be replaced without removing adjacent units, main bus connectors, and without drilling or tapping. Panel phase bus connections to protective devices shall not be riveted to the panel bus and shall be field removable by means of a screw driver.
- Where designated on panel schedule as "space", include all necessary bussing, device support and connections. Provide blank cover for each space.
- Cabinets for panels may be factory primed and suitably treated with a corrosion-resisting paint finish meeting UL standard for outdoor applications.
- Cabinet enclosure shall not have ventilating openings.
- Back and sides shall be of one piece formed steel. Cabinets for distribution panels may be of formed sheet steel with end and side panels welded, riveted, or bolted as required.
- Provide minimum of four interior mounted studs and necessary hardware for "in" and "out" adjustment of panel interior.
- Gutter size in panel boxes, on all sides, shall be in accordance to the NEC. Cabinets containing through feeders shall have the gutters space increased by the amount required for auxiliary gutters in the NEC.
- Surface trim shall have the same width and height as the box.
- Provide doors with flush type latch and manufacturer's standard lock. Doors over 48 inches in height shall have a vault handle and a three point catch, arranged to fasten door at top, bottom, and center.
- In making switching devices accessible, doors shall not uncover any live parts.
- Provide concealed, butt hinges welded to the doors and trims.
- Provide a directory card, metal holder, and transparent cover. Permanently mount holders on inside of doors.
- Painting: Thoroughly clean and paint trims and doors at the factory with primer and manufacturer's standard finish.

Circuit breakers shall be UL listed and labeled, in accordance to the NEC, as shown on the drawings, and as specified. Circuit breakers in panelboards shall be bolt on type on phase bus bar or branch circuit bar. Molded case circuit breakers shall have automatic, trip free, non-adjustable, inverse time, and instantaneous magnetic trips for 100 ampere frame or less. Magnetic trip shall be adjustable from 3X to 10X for breakers with 600 ampere frames and higher. Factory setting shall be HI, unless otherwise noted. Breaker features shall be as follows:

- Molded case circuit breakers for lighting and appliance branch circuit panelboards shall have minimum interrupting rating as indicated but not less than:
- 120/208 and 240/120 Volt Panelboard: 22,000 amperes symmetrical.
- 277/480 Volt Panelboard: 14,000 amperes symmetrical.
- A rugged, integral housing of molded insulating material.
- Silver alloy contacts.
- Arc quenchers and phase barriers for each pole.
- Quick-make, quick-break, operating mechanisms.

- A trip element for each pole, thermal magnetic type with long time delay and instantaneous characteristics, a common trip bar for all poles and a single operator.
- Electrically and mechanically trip free.
- An operating handle which indicates ON, TRIPPED, and OFF positions.
- Line connections shall be bolted.
- Interrupting rating shall not be less than the maximum short circuit current available at the line terminals as indicated on the drawings.
- An overload on one pole of a multipole breaker shall automatically cause all the poles of the breaker to open.

Lighting contractors shall be UL listed and labeled, electrically held, multipole, NEMA ICS 2 contactor. Unit shall have a NEMA 3R enclosure. Provide the number of 30A rated poles as required for circuited load plus two spare poles. Contacts shall be silver-cadmium oxide coated. Contacts shall be capable of being field converted. Provide an ON/OFF/AUTOMATIC selector switch. Contactor shall be controlled by a photocell in the automatic mode. Photo cell shall be a flush mounting type wherein only the photo-sensitive portion extends through the power center panel. Provide lighting contactors for both the street lighting circuit and receptacle circuit if receptacle circuits are utilized.

Mount individual fused switches in NEMA 1, general-purpose, enclosures unless otherwise indicated. Provide NEMA 4X, stainless steel watertight enclosures for fused switches mounted outdoors and wherever the subscript WP is indicated on the Plans. Provide fused switches that can be locked in the OFF position. Interlock enclosures to prevent opening the cover with the switch in the ON position. Provide fused switches which are quick-make, quick-break, motor-rated, load-break, heavy-duty (HD) type having external marking clearly indicating ON and OFF positions. Provide fuses of the current ratings indicated and types specified herein. Utilize fuse mountings that reject Class H fuses and will accept only the current-limiting fuses specified. Install fused switches meeting the requirements of UL and NEMA KS-1 and being suitable for application to a system having an available short circuit current suitable for the installation. Where fused switches are used as service entrance equipment, provide units with UL approval for that use.

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" diameter 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.

Electrical permits and all applications will be required.

D Measurement
The department will measure by each Distribution Center Lighting by each individual unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1110	Distribution Center Lighting	Each

Payment is full compensation for furnishing and installing all materials including excavation, fill, surface restoration, concrete masonry, electrical parts and construction, utility hookup fees, and required line and load side connections; and for furnishing all incidentals.

136. Electrical Service Meter Breaker Pedestal - RPT, Item SPV.0060.1152.

A Description
This work shall consist of furnishing and installing an electrical service for the temporary Research Park lighting as shown on the plans and as follows.

Provide a 100 amp, 120/240 volt, single phase, underground electrical service lateral, furnished and installed by the local utility. The service lateral shall terminate at a meter socket located in a meter pedestal as detailed.

The contractor shall arrange for the electrical power source in the name of WisDOT. The engineer shall be notified when the system is ready for connection to the power mains. The contractor shall pay for the Utility service installation. WisDOT will pay for energy costs.

B Materials
The contractor shall furnish and install an approved meter pedestal, conduit fittings, and connection(s) and all necessary conductors and equipment required by the State Electrical Code and the utility for a service connection.

Utility grade materials as shown on the plans are required. The meter pedestal and support materials shall be in accordance to the latest edition of the WE Energies Electric Service and Metering Manual.

When required by the local utility, a manual bypass meter socket may be required.

Provide NEMA 4, watertight enclosures for fused switches mounted outdoors or wherever the subscript WP is indicated on the Plans. Provide fused switches that can be locked in the OFF position. Interlock enclosures to prevent opening the cover with the switch in the ON

position. Provide fused switches which are quick-make, quick-break, motor-rated, load-break, heavy-duty (HD) type having external marking clearly indicating ON and OFF positions. Provide fuses of the current ratings indicated and types specified herein. Utilize fuse mountings that reject Class H fuses and will accept only the current-limiting fuses specified. Install fused switches meeting the requirements of UL and NEMA KS-1 and being suitable for application.

C Construction

The contractor shall install the electrical service in accordance to local utility requirements. The contractor shall furnish the utility with a wiring affidavit, certifying that the service has been installed in accordance to the State of Wisconsin electrical code.

The contractor shall be responsible for coordinating the timely installation of the service lateral by the utility.

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 re-pulling of old wire is an incidental to the pulling of new wire.

Splices shall be made at the distribution centers, in junction boxes and at pole bases only, unless otherwise approved by the engineer, otherwise shown on the plans, or forming part of work indicated to be temporary. Wire runs shall be continuous between the locations approved for splices.

Damp location splices may be made with Scotchlock or equivalent wire nuts for three #6 AWG wires or smaller or two #4 AWG wires or smaller. Split bolt or crimp splices will be accepted for the above application and are required for larger combinations of wires. Split bolt or crimp splices made in damp locations shall be made for each conductor and shall be appropriately sized. Split-bolt or crimp splices shall be made without irregularities or voids around the fitting and shall be built up with 3M "2200" vinyl mastic pad or approved equal, covered with an approved vinyl insulating tape, and finished with an outer layer of electrical varnish. Damp locations include pole bases, well-drained junction boxes, vented cabinets, approved condulets, and luminaire housings.

Wet location splices shall be made with an approved epoxy insulation kit. Wet locations include direct earth burial, pull boxes, and junction boxes where there is not good drainage.

Mount the fused disconnect switches in a straight and plumb manner. Provide a wooden overall enclosure for the fused disconnect switches to limit access by the public. The enclosure should be neat, square and plumb. Enclosure shall be made of marine plywood and provided with a green enamel coat of paint.

D Measurement
The department will measure Electrical Service Meter Breaker Pedestal – RPT by each individual service completed and energized, 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.0060.1152	Electrical Service Meter Breaker Pedestal - RPT	Each

Payment is full compensation for providing the excavation, backfill, conduit, fittings, metering pedestal and meter socket, anchoring, concrete, inspection and incidentals necessary to complete.

137. Remove Electrical Service Meter Breaker Pedestal Lighting, Item SPV.0060.1153.

A Description
This special provision describes removing an existing electrical service meter breaker pedestal, supports and any additional electrical equipment associated with the service including disconnect switches and wooden overall enclosure, disconnecting all connected power wires, and disposing of the equipment appropriately.

B Materials
Materials include existing electrical service meter breaker pedestal, supports and disconnect switches if present.

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 Remove Electrical Service Meter Breaker Pedestal Lighting by each individual removed unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1153	Remove Electrical Service Meter Breaker Pedestal Lighting	Each

Payment is full compensation for coordination with WE Energies; for disconnection of wires; and for removal and disposal of the pedestal and any additional material of the service.

138. Install Wireless Modem, Item SPV.0060.2001.

A Description

This special provision describes installing a wireless cellular modem and antenna and providing all necessary associated wiring.

B Materials

The department will furnish the wireless cellular modem and antenna. Provide all necessary cables between the wireless modem and device to be connected to it.

C Construction

Drill a hole in the new or existing cabinet to install the wireless modem antenna cable through. Mount the antenna on top of the cabinet and seal the hole with purpose-made waterproof sealing device such as a grommet or gasket.

Install the wireless modem in a new or existing field cabinet. Connect it to the antenna and to devices as shown on the plans, or as directed by the engineer.

D Measurement

The department will measure Install Wireless Modem by each individual installed unit, acceptabl 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.0060.2001	Install Wireless Modem	Each

Payment is full compensation for installing a wireless modem; furnishing all necessary incidental hardware; for testing; and making all necessary connections.

139. Removing Electrical Service Meter Breaker Pedestal, Item SPV.0060.2002.

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 each individual removed unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2002	Removing Electrical Service Meter Breaker Pedestal	Each

Payment is full compensation for coordination with WE Energies; for disconnection of wires; for removal and for disposal of the pedestal.

140. Install 900 MHz Radio, Item SPV.0060.2003.

A Description
This special provision describes installing a department-furnished 900 MHz serial or contact closure communications spread spectrum radio. The department will also furnish set-up software for the radio and a lightning protector for the antenna connection.

B Materials
Spread-spectrum radios and surge protectors as furnished by the department, and coaxial cable and connectors, and metallic conduit as supplied by the contractor.

Furnish ½-inch foam dielectric 50-Ohm coaxial cable meeting the following minimum requirements:

- 50 Ohms impedance (plus / minus 1 Ohm)
- Intended for a range of frequencies including 900 MHz
- Velocity of 88%
- Peak power rating of 40 kW
- DC resistance of 0.45 Ohms / 1000 feet for the inner conductor
- DC resistance of 0.58 Ohms / 1000 feet for the outer conductor
- DC breakdown of 4000 volts
- Jacket Spark of 8000 volts RMS
- Capacitance of 23.1 pF / foot
- Inductance of 0.058 µH / foot
- Copper outer conductor
- Copper-Clad Aluminum inner conductor
- Diameter over jacket 0.63 inches (nominal)

- Diameter over Copper Outer Conductor of 0.55 inches (nominal)
- Diameter of inner conductor of 0.189 inches (nominal)
- Minimum bending radius of 5-inches
- Attenuation of 2dB / 1000 feet (nominal) at 900 MHz
- Average power of 1.10 (nominal) at 900 MHz

Furnish cable connectors to fit between the coaxial cable and the department-furnished spread spectrum radio.

C Construction

Bond the surge protector to the cabinet grounding system.

Use the manufacturer's set-up software to configure the radio for its intended use.

Following installation of the radio, antenna, and cable, aim the antenna at the matching antenna, as shown on the plans. Use the signal strength indicator on the radio to find the optimum position of the antenna. Also perform a frequency analysis to determine the optimal hop pattern of the radios, and test the continuity of every link by polling the radios using the software provided by the manufacturer. The position of the antenna and the hop pattern shall be adjusted until the polls show at least 200 consecutive polling intervals have been successfully transmitted and received. Demonstrate to the engineer that the hop pattern selected corresponds to the optimal noise free frequencies identified in the frequency analysis. Deliver 3 copies of the final test results for signal strength, frequency analysis, and test polling.

Following the installation of the spread spectrum radio assembly, antennas, and cables, perform the following tests:

- **V.S.W.R test** from the connection at the radio, with a fully configured antenna system (antenna, cable, and all connections). The V.S.W.R. shall not exceed 1.5:1 at 900 MHz.
- **Bit error rate test**: Test at 5600 bps from the radio to the matching radio shown on the block diagram in the plans. Test for 4 hours at a 2048 bit pattern. Provide a hard copy output of results of each test to the engineer. The maximum error rate shall be 1 erroneous bit every 1 million bits.

D Measurement

The department will measure Install 900 MHz Radio as each individual installed unit, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2003	Install 900 MHz Radio	Each

Payment is full compensation for installing, setting up, configuring, and testing the spread spectrum radio, surge protector, cables, and connections; and for testing.

141. Ground Rod, Item SPV.0060.2004.

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 each individual installed unit, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price each under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2004	Ground Rod	Each

Payment is full compensation for installation of the ground rod and ground wire; and for welding and connections at both ends of the ground wire.

142. Install Dynamic Message Sign, Item SPV.0060.2005.

A Description

This special provision describes installing a department-furnished dynamic message sign and controller on new concrete footings and sign support (paid for separately), integrating the sign and making it functional in the existing system.

B Materials

Materials will include department-furnished materials and contractor furnished materials.

Department-furnished materials include the following:

- One Daktronics Vanguard Overhead Cantilever Mounted Arterial Dynamic Message Sign (DMS). The DMS is 9’ 10-13/32” long by 3’ 7-29/32” tall by 9-3/8” deep and weighs approximately 650 pounds.
- One Daktronics Vanguard VFC-3000 DMS Controller.
- Control cable from DMS Controller to DMS.

Contractor furnished materials include the following:

- AWG #6 copper wire or equivalent bonding straps to bond the sign to the structural steel.

C Construction

Install the department-furnished sign controller in the cabinet as shown on the plans using one of the power outlets included in the cabinet.

Connect the power and control cables in accordance to the manufacturer’s recommendations.

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 an AWG # 6 solid, bare copper wire to bond the sign structure to the ground rod(s). 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 Dynamic Message Sign as each individual installed 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.0060.2005	Install Dynamic Message Sign	Each

Payment is full compensation for installation of the sign and controller; fabrication and installation of all mounting hardware; furnishing and installation of control and power cables; and for testing the sign and controller.

143. Removing Controller Cabinet, Item SPV.0060.2006.

A Description

This special provision describes removing an existing controller cabinet from a concrete base or a pole mount.

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 or poles, 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 each individual removed 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 Controller Cabinet	Each

Payment is full compensation for removal and storage of the controller cabinet; disconnecting all associated wires and cables; and for capping existing conduits.

144. Removing Controller Cabinet Base, Item SPV.0060.2007.

A Description
This special provision describes removing an existing controller cabinet concrete base.

B Materials
Existing controller cabinet base, including concrete masonry, ground rods, masonry anchors, and restoration materials such as topsoil, seeding, mulch, and fertilizer in accordance to the pertinent provisions of standard spec 201, 625, 627, 629, 630, 636.

C Construction
Remove and dispose of the concrete foundation and all other pertinent materials, and restore the disturbed area by placing 4-inches of topsoil, and fertilize, seed, and mulch all disturbed areas in accordance to the pertinent requirements of the standard specifications.

D Measurement
The department will measure Removing Controller Cabinet Base by each individual removed unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2007	Removing 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.

145. Removing Camera Pole, Item SPV.0060.2008.

A Description
This special provision describes removing an existing camera pole.

B Materials
Existing CCTV camera 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. Any antennae, or other equipment mounted on the pole will be picked up by the department. Dispose of the conduit, cabling, and wiring properly away from the project site. Salvage and store the poles for pick up by the department.

D Measurement
The department will measure Removing Camera Pole by each individual removed 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.0060.2008	Removing Camera Pole	Each

Payment is full compensation for removing and storing the existing camera pole; disconnecting any necessary wiring; removing the poles and equipment mounted on the poles; disposing of cabling and wiring; and transportation.

146. Removing Communications Vault, Item SPV.0060.2009.

A Description
This special provision describes removing an existing communications vault.

B Materials
Materials include existing communications vault and restoration materials such as backfill, topsoil, seeding, mulch, and fertilizer in accordance to the pertinent provisions of standard spec 201, 625, 627, 629, 630, 636, and 640.

C Construction
Disconnect and cap conduit entering the communications vault. Remove and dispose of the communications vault. Backfill with material similar to the material surrounding the removal and restore the disturbed area by placing 4-inches of topsoil, and fertilize, seed, and mulch all disturbed areas in accordance to the pertinent requirements of the standard specifications.

It is acceptable to re-use the vault lid in instances where new communications vaults are being installed in the project and the existing lid is undamaged. It is the contractor's responsibility to determine if the existing vault lids fit on the proposed vaults.

D Measurement
The department will measure Removing Communications Vault by each individual removed unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2009	Removing Communications Vault	Each

Payment is full compensation for removing and disposing of a communications vault; and for backfill, topsoil, fertilizer, seed and mulch.

147. Install 5.8 GHz Ethernet Bridge, Item SPV.0060.2010.

A Description
This special provision describes installing a department-furnished, or salvaged, 5.8 GHz Ethernet bridge access point or subscriber unit at a new or existing cabinet or new or existing pole.

B Materials
Materials will include department-furnished materials and contractor furnished materials.

Department-furnished or salvaged, materials include the following:

- One 5.8 GHz Ethernet bridge with integral antenna.
- One 5.8 GHz Ethernet bridge power converter.
- One 5.8 GHz Ethernet bridge mounting bracket.

Contractor-furnished materials include the following:

- Mounting hardware.
- Outdoor rated Category 6 communications cable.
- Inline network cable surge suppressor.

C Construction

Bond the surge suppressor to the cabinet grounding system.

Install the 5.8 GHz Ethernet bridge in a point-to-point or point-to-multipoint configuration as shown on the plans and as directed by the engineer.

Use the manufacturer's set-up software to configure the Ethernet bridge radio for its intended use. Use the signal strength indicator on the radio to find the optimum position. Also perform a frequency analysis to determine the optimal hop pattern of the radios and test the continuity of the link by polling the radios using the software provided. The position of the radio and the hop pattern shall be adjusted until the polls show at least 200 consecutive polling intervals have been successfully transmitted and received. Demonstrate to the engineer that the hop pattern selected corresponds to the optimal noise free frequencies identified in the frequency analysis. Deliver 3 copies of the final test results for signal strength, frequency analysis, and test polling.

D Measurement

The department will measure Installing 5.8 GHz Ethernet Bridge as each individual installed unit, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price each under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2010	Install 5.8 GHz Ethernet Bridge	Each

Payment is full compensation for installing, setting up, configuring, and testing the 5.8 GHz Ethernet bridge radio, surge suppressor, cables, and connections.

148. Concrete Bases Type 1 Spread Footing, Item SPV.0060.3010; Concrete Bases Type 2 Spread Footing, Item SPV.0060.3011.

A Description

Work under this specification shall be done in accordance to standard spec 654, contract plan detail, and these special provisions.

B Materials

Materials shall be in accordance to standard spec 654.

C Construction

Construction shall be in accordance to standard spec 654.

D Measurement
The department will measure Concrete Bases Type 1 Spread Footing and Concrete Bases Type 2 Spread Footing 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.0060.3010	Concrete Bases Type 1 Spread Footing	Each
SPV.0060.3011	Concrete Bases Type 2 Spread Footing	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; and for excavating, backfilling, and disposing of surplus materials.

149. Backplates with Reflective Border 3 Section 12-Inch, Item SPV.0060.3012.

A Description
This special provision describes furnishing and installing traffic signal backplates with a 2-inch reflective border.

B Materials
Backplate materials shall be in accordance to standard spec 658.2.2.2.

Reflective border materials shall be in accordance to standard spec 637.2.2.3 and 637.2.3.4.2. The adhesive for the reflective border shall be pressure sensitive per manufacturer's recommendations.

C Construction
Construction shall be in accordance to the manufacturer’s recommendations and standard spec 637.3 and 658.3.

D Measurement
The department will measure Backplates with Reflective Border 3 Section 12-Inch bid items as each individual backplate, 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.0060.3012	Backplates with Reflective Border 3 Section 12-Inch	Each

Payment is full compensation for furnishing and installing backplates with reflective border and mounting screws; and for disposing of surplus materials.

150. IntersectionLuminaire LED, Item SPV.0060.3015.

A Description

This special provision describes furnishing and installing LED luminaires at the locations shown in the plan.

B Materials

B.1 Material Qualifications

Furnish a complete list of documentation in accordance to standard spec 651.2 and the following requirements. Be prepared to provide the following materials and/or data to the engineer, Matthew Pfeifer, WisDOT SE Region Lighting Engineer, 141 NW Barstow Street, Waukesha, WI 53187 (414) 750-2836, Matthew.Pfeifer@dot.wi.gov, and the City of Wauwatosa Public Works, Joe Kroll, 11100 W. Walnut Road, Wauwatosa, WI, (414) 471-8422, jkroll@wauwatosa.net, for review and approval:

One example luminaire matching what is proposed for use on the project. Example luminaire shall be available for evaluation for up to two weeks time. Furnish the following list of specific documentation detailing the characteristics of the LED luminaire:

- Fixture IES files (.ies format) for illumination modeling.
- Cut sheets, warranty information and parts list for all equipment.
- Luminaire heat dissipation techniques.
- Energy usage information.
- Color spectrum with HID lamp comparison.
- Optical design features.
- Two references from municipalities currently using the same luminaires.

Do not order materials until the engineer approves the list.

B.2 Luminaire

Furnish LED luminaires with a slim, low profile design that minimizes wind loading. Luminaires shall be constructed of rugged cast and extruded aluminum with integral, weather-tight LED driver components with high performance aluminum heat-sinks. Each luminaire shall use a terminal block for power input suitable for #2 to #14 AWG wire. Luminaire shall be IESNA Type II or III Medium distribution without backlight control. The luminaire shall designed to mount on a 2” IP (2.375” O.D.) horizontal tenon and shall be adjustable +/- 5 degrees to allow for leveling. Luminaire shall include a leveling bubble visible from the underside of the unit.

B.2.1 Electronic Components

Luminaire shall accommodate varied lighting output from high brightness, 4300K (+/- 500K per full unit), minimum 70 CRI, long life LED sources. Drivers shall operate across 120-277V, 50/60 Hertz as standard. LED drivers shall have a power factor greater than 90% and THD less than 20% of full load. All luminaires shall come equipped with an integral 9kV surge suppression protection standard and a quick disconnect harness

suitable for mate and break under load provided on power feed to driver for ease of maintenance.

B.2.2 Optical / Illumination Performance
Luminaire shall conform to the following:

- Luminaire tested and certified by an independent test laboratory to meet the photometric performance criteria established by IESNA LM-79.
- Luminaire shall be IESNA Type II or III Medium distribution.
- Luminaire shall deliver a minimum of 16,000 lumens and be rated to consume no more than 250 watts (+/- 10%) while operating for a minimum of 70,000 hours (+/- 10%).
- Maximum nominal drive current of 700 Ma.

B.2.3 Finish
The luminaire fixture finish shall feature an epoxy primer with an ultra-durable silver powder topcoat, providing resistance to corrosion, ultraviolet degradation and abrasion. Alternative equivalent finishes shall be approved by the engineer.

B.2.4 Ratings / Certifications
Luminaires shall be rated and/or certified as follows:

- U.L. listed for wet locations.
- RoHS compliant for lead and mercury standards.
- IP-66 minimum weather fastness rating.
- IDA dark sky full cutoff compliant.

Acceptable LED luminaires are:

- Philips Roadview Model: RVM-215W 128 LED 4K – LE3.
- Beta LEDway Model: STR-LWY-2M-12-D-UL-700 – 43K.
- Or Approved Equal.

C Construction
Install LED Luminaire in accordance to the pertinent provisions of standard spec 659 and as the manufacturer directs.

D Measurement
The department will measure Luminaire LED as each individual LED luminaire, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.3015	Intersection Luminaire LED	Each

Payment is full compensation for furnishing all materials; installing a complete luminaire; and for furnishing all documentation.

151. Poles Type 10, Item SPV.0060.3016; Poles Type 12, Item SPV.0060.3017.

A Description

Work under this item consists of furnishing and installing monotube poles at the intersection of W. Watertown Plank Road and Innovation Drive.

B Materials

Design support structures conforming to the minimum wall thickness the plan details show and to AASHTO design and fabrication standards for structural supports for highway signs, luminaries, and traffic signals. Use a design life of 50 years. Design to withstand a 3 second gust wind speed of 90 mph (145 km/h). Do not use the methods of Appendix C of those AASHTO standards.

Use Category III criteria for Type 9 and Type 10 Poles. Use Category II criteria for Type 12 and Type 13 Poles.

For structures requiring a fatigue analysis, use 45 mph (72 km/h) for truck-induced gusts.

After welding and before zinc coating, clean the exterior surface of each steel pole free of all loose rust and mill scale, dirt, oil or grease, and other foreign substances.

Apply a zinc coating conforming to the process specified for steel sign bridges in standard spec 641.2.8. Ensure that the zinc coating is tight, free from rough areas or slag, and presents a uniform appearance.

After completing manufacturing, clean the exterior surfaces of each pole free of all loose scale, dirt, oil or grease, and other foreign substances.

Provide a reinforced hand hole measuring 4 inches by 6 inches (100 mm by 150 mm) as the plans show. Locate the hand hole 18 inches (450 mm) from the bottom of the pole base to the center of the door.

For the hand hole, include an access cover mounted to the pole by two ¼”-20 x ¾” (m6 x 1.00 x 19 mm) hex-head stainless steel bolts.

Provide a grounding lug complete with mounting hardware, as required, inside the pole as the plans show.

Provide access to the grounding lug from the hand hole. Weld the ground lug directly opposite the hand hole on the inside wall of the pole.

Equip the top of the shaft with a removable, ventilated cap held securely in place by at least 3 ¼" -20 x ¾" (m6 x 1.00 x 19 mm) hex-head stainless steel set screws.

Ensure that all castings are clean, smooth, and with all details well defined and true to pattern.

Attach base plates firmly to the pole shaft by welding or other approved method.

Provide anchor bolts meeting AASHTO standards applicable to the pole type and loading (see SDDs Type 10 Pole 15'-30' Monotube Arm, Type 12 Pole 35'-55' Monotube Arm, and General Notes and Hardware Details for Type 9,10,12,13 Poles with Monotube Arms for specific pole types).

Provide anchor bolt templates as shown on the standard detail drawings for the concrete base to ensure correct alignment of anchor bolts in foundation (see SDDs Concrete Base Type 10, Concrete Base Type 13, and Concrete Base Type 10 & Type 13 Extension for specific base types).

C Construction

Clean each pole before installation.

Install poles as specified in the plan details. Secure pole to anchor assembly and document tensioning procedures conforming to standard spec 641.3.1.2.

After completing erection using normal pole shaft raking techniques, ensure the centerline of the shaft is vertical.

Install identification plaques as the plans show.

D Measurement

The department will measure each Poles (Type) as each individual pole, acceptably completed.

E Payment

The department will pay for measured quantity at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.3016	Poles Type 10	Each
SPV.0060.3017	Poles Type 12	Each

Payment is full compensation for providing and installing poles including all hardware and fittings necessary to install the poles; and for installing identification plaques, if required.

152. Concrete Bases Type 10 Contractor Supplied Anchor Bolts and Anchor Rod Template, Item SPV.0060.3018; Concrete Bases Type 13 Contractor Supplied Anchor Bolts and Anchor Rod Template, Item SPV.0060.3019.

A Description

This special provision describes constructing concrete bases, including the use of contractor supplied anchor bolts and anchor rod templates.

B Materials

B1. Concrete Bases

Furnish grade A, A-FA, A-S, A-T, A-IS, or A-IP concrete conforming to standard spec 501.2 as modified in standard spec 716. Provide QMP for class III ancillary concrete as specified in standard spec 716.

Furnish bar steel reinforcement conforming to standard spec 505.2.

Use schedule 40 PVC electrical conduit conforming to the electrical conduit specified in standard spec 652.

B2. Anchor Bolts

Provide anchor bolts conforming to AASHTO M 314, grade 55 and Supplementary Specification S1, or ASTM F1554 Grade 55. Threads on bolts shall be formed by rolling.

Hot-dip galvanize the entire length of the anchor rods according to AASHTO M111. Hot-dip the nuts and washers according to AASHTO M232. Use zinc coated nuts manufactured with sufficient allowance to allow nuts to run freely on the threads.

B3. Anchor Rod Template

Furnish a steel top and bottom template conforming to ASTM A709, grade 36 as part of each anchor assembly. Provide a top template of sufficient gauge to hold the anchor rods securely in position at the top, and resist racking or twisting during the pour. Use a ½-inch thick bottom anchor plate-template and secure it to each anchor rod. Templates shall not be welded to the anchor rods.

C Construction

C1. Concrete Bases

Construct concrete bases, including necessary hardware, as specified in standard spec 501 and plan details, and provide the surface finish specified in standard spec 502.3.7.2. Inspect the forming and applicable reinforcement for concrete bases before pouring the concrete. Cure exposed portions of concrete bases as specified for concrete pavement in standard spec 415.3.12 except the contractor may use curing compound conforming to standard spec 501.2.9. Wait at least 7 days before installing poles.

C2. Anchor Bolts
Lubricate anchor bolt threads and nuts with bees wax or other high-wax lubricant. Set leveling nuts to the required elevation before installing the structure. Adjust top nuts and leveling nuts to align and plumb the structure. Ensure that all nuts are snug-tight with no gaps. Tighten each top nut 1/3 turn past snug for bolts 1 1/2 inch or smaller in diameter and 1/6 turn for larger diameter bolts conforming to the tightening sequence specified on department form DT 2321. If required, install jamb nuts wrench tight.

Complete department form DT 2321 for each structure. Indicate the parties responsible for the installation and submit the form to the engineer for inclusion in the permanent project record.

C3. Anchor Rod Templates
Secure the anchor rod template to all anchor rods at one time in its correct position as the plan details show. Ensure relative movement and misalignment does not occur. If any twisting, racking, or other movement of the anchor rods out of plumb, projection, or pattern, or any damage to the threads exists the engineer will reject the entire base.

Maintain the clear distance between the soil and the reinforcing steel cage using the means the plan detail shows. Do not weld the anchor rods to each other, the reinforcing steel cage, and the templates or to any other component of the foundation.

If an anchor rod template is located above the concrete surface, it may be removed 24 hours after placing the concrete.

D Measurement
The department will measure Concrete Bases (Type), Contractor Supplied Anchor Bolts and Anchor Rod Template 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.0060.3018	Concrete Bases Type 10 Contractor Supplied Anchor Bolts and Anchor Rod Template	Each
SPV.0060.3019	Concrete Bases Type 13 Contractor Supplied Anchor Bolts and Anchor Rod Template	Each

Payment for the Concrete Bases (Type), Contractor Supplied Anchor Bolts and Anchor Rod Template is full compensation for providing concrete, reinforcing steel, and electrical conduit; for providing anchor rods, templates, nuts, and washers; for excavating; for driving steel piling, if required; for installing electrical conduit, electrical ground, templates; for placing and curing concrete; for backfilling; and for disposing of surplus material and restoring the site.

153. Anchor Assemblies Light Pole Structures, Item SPV.0060.4010.

A Description

Furnish and install anchor bolt assemblies for light poles 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 105. 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 six nuts and washers per anchor bolt for Anchor Assemblies Light Pole 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.

D Measurement

The department will measure Anchor Assemblies Light Poles 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.0060.4010	Anchor Assemblies Light Pole Structures	Each

Payment is full compensation for furnishing and installing the anchorages.

154. Micropile Verification Load Test, SPV.0060.4020, Micropile Proof Load Test, Item SPV.0060.4030.

A Description

Work under this item consists of testing micropiles installed for this project. Perform work in accordance to pertinent parts of the standard specifications, the plans, and these special provisions.

A.1 Definitions

Alignment Load: A minimum initial load (no greater than 5 percent of the Factored Design Load) applied to micropile during testing to keep the testing equipment correctly positioned.

Compression Load Test: Verification or Proof Load Test to verify the factored design load downward on the pile.

Factored Design Load: The maximum test load that verification and proof load test micropiles must safely carry. The factored design load is equal to the factored axial load using LRFD methodology.

Factored Resistance: The ultimate resistance composed of the lower of the geotechnical resistance and structural resistance, multiplied by resistance factors applied as is shown on the plans. The factored resistance is greater than or equal to the factored design load.

Maximum Test Load: The maximum load to which the micropile is subjected during testing. For this project the maximum test load will be the factored design load.

Micropile: A small-diameter, bored, cast-in-place composite pile, in which the applied load is resisted by steel reinforcement, cement grout and frictional grout/ground bond.

Production Pile: A pile used for supporting a structure. Production piles shall be installed using the same equipment, methods, and materials as accepted test piles.

Proof Load Test: Incremental loading of a production micropile, recording the total movement at each increment.

Reaction Pile: Optional pile installed to assist in testing a test pile or a production pile.

Required Ultimate Resistance: The limiting resistance of the geotechnical resistance or structural resistance.

Tension Load Test: Verification or Proof Load Test to verify the factored design load for uplift on the pile. Tension Load Tests may also be used to verify the factored design load downward on the pile, if permitted on the plans.

Test Piles: Sacrificial test piles that are not incorporated into the substructure, and which are abandoned after completion of testing. Non-production test piles shall be installed using the same equipment, methods, materials, and under the same headroom as production piles.

Verification Load Test: Pile load test performed to verify the design of the pile system and the construction methods proposed, prior to installation of production piles.

A.2 Contractor Qualifications

A.2.1 Verification and Proof Load Test Contractor

The proof load test contractor may be the same contractor or subcontractor installing the micropiles, or a different contractor with the same experience as required by the micropile contractor outlined in the 10.75-Inch Micropile Foundation and 11.75-Inch Micropile Foundation articles.

A.2.2 Documentation

Fulfill the same documentation requirements as required for the micropile contractor, as outlined in the 10.75-Inch Micropile Foundation and 11.75-Inch Micropile Foundation articles.

B (Vacant)

C Construction

C.1 General

Perform verification and proof testing of piles at the locations specified on the plans. Perform compression load testing in accordance to ASTM D1143 and tension load testing in accordance to ASTM D3689, except as modified herein. Tension load testing may be permitted to evaluate the factored resistance downward on the micropile, if permitted on the plans. Perform proof load test(s) on the first set of production piles installed at each designated substructure unit prior to the installation of the remaining production piles in that unit. The initial proof test piles shall be installed at the locations shown on the plans. Reaction piles may be installed to assist in proof testing at no cost to the department. Production piles next to proof test piles may be installed at the same time as proof test piles to serve as reaction pile(s) for the proof test(s). For a pile to operate as a reaction pile, it must be a minimum of 7’ away from the test pile. Upon completion of each test, the contractor shall submit a report stamped by a qualified professional engineer licensed in the State of Wisconsin of the test results for review and acceptance by the engineer.

Perform pre-production verification micropile load test(s) to verify the design of the pile system and the construction methods proposed prior to installing any production piles. Verification test pile(s) shall be constructed in conformance with the approved shop drawings. Verification test pile(s) shall be installed at the location(s) shown on the plans or at a location(s) approved by the engineer. Reaction piles may be installed to assist in testing verification test pile(s) at no cost to the department. Verification test piles may not be used as production piles. Remove verification test piles that conflict with the installation of production piles.

Verification load test(s) shall be performed to verify that the contractor installed micropiles will meet the compression and/or tensile load capacities and load test acceptance criteria and to verify that the length of the micropile load transfer bond zone is adequate. The micropile verification load test results must verify the contractor’s design and installation methods.

The drilling method, grouting method, casing length, micropile diameter (cased and uncased), reinforcing bar length and length of embedment for the verification test pile shall be identical to those specified for the production piles at the given locations. The verification test micropile structural steel sections shall be sized to safely resist the maximum test load.

The maximum verification and proof test loads applied to the micropile shall not exceed 80 percent of the structural capacity of the micropile structural elements; include steel yield in tension, steel yield or buckling in compression, or grout crushing in compression. Any required increase in strength of the verification and proof test pile elements above the strength required for the production piles shall be provided for at no cost to the department.

Testing equipment shall include dial gauges, dial gauge independent reference frame, jack and pressure gauge, electronic load cell (with readout device), and a reaction frame. The contractor shall provide a description of test setup and jack, pressure gauge and load cell calibration curves in accordance to the Submittals Section in the 10.75-Inch Micropile Foundation and 11.75-Inch Micropile Foundation articles.

Design the testing reaction frame to be sufficiently rigid and of adequate dimensions such that excessive deformation of the testing equipment does not occur. Align the jack, bearing plates, and stressing anchorage such that unloading and repositioning of the equipment will not be required during the test.

C.2 Testing Procedure

Apply and measure the test load with a hydraulic jack and pressure gauge. The pressure gauge shall be graduated in 100 psi increments or less. The jack and pressure gauge shall have a pressure range not exceeding twice the anticipated maximum test pressure. Jack ram travel shall be sufficient to allow the test to be done without resetting the equipment.

Measure the micropile top movement with a dial gauge capable of measuring to 0.001 inches. The dial gauge shall have a travel sufficient to allow the test to be done without having to reset the gauge. Visually align the gauge to be parallel with the axis of the micropile and support the gauge independently from the jack, pile or reaction frame. Use a minimum of two dial gauges when the test setup requires reaction against the ground or single reaction piles on each side of the test pile.

C.2.1 Verification Load Testing Procedure

Test verification piles to the “Factored Design Load” shown on the plans. The verification pile load tests shall be made by incrementally loading the micropile in accordance to the following cyclic load schedule for both compression and tension loading (test the compression prior to tension):

Verification Test Loading Schedule		
AL = Alignment Load FDL = Factored Design Load		
	LOAD	HOLD TIME
1	AL (.05 FDL)	1 minute
2	0.25 FDL	1 minute
3	0.50 FDL	1 minute
4	AL	1 minute
5	0.25 FDL	1 minute
6	0.50 FDL	1 minute
7	0.75 FDL	1 minute
8	AL	1 minute
9	0.25 FDL	1 minute
10	0.45 FDL	1 minute
11	0.60 FDL	1 minute
12	0.75 FDL	1 minute
13	AL	1 minute
14	0.25 FDL	1 minute
15	0.40 FDL	1 minute
16	0.55 FDL	1 minute
17	0.65 FDL	1 minute
18	0.75 FDL	60 minutes
19	0.90 FDL	1 minute
20	1.00 FDL (Maximum Test Load)	10 minutes
21	AL	1 minute

The test load shall be applied in increments of the FDL load given in the table above. Each load increment shall be held for a minimum of 1 minute. Micropile top movement shall be measured at each load increment. The load-hold period shall start as soon as each test load increment is applied. The alignment load shall not exceed 5 percent of the FDL load. Dial gauges shall be reset to zero after the initial AL is applied.

C.2.1.1 Verification Load Testing Acceptance Criteria

The acceptance criteria for micropile verification load tests are:

The micropile shall sustain the compression or tension 1.0 FDL test load with no more than ½" total vertical movement at the top of the pile, relative to the position of the top of the pile prior to testing.

Upon completion of the test, the contractor shall submit a report stamped by a qualified professional engineer licensed in the State of Wisconsin of the test results for review and acceptance by the engineer prior to beginning installation of production micropiles. This report shall include written confirmation of the verification micropile's capacity.

If a verification tested micropile fails to meet the acceptance criteria, the contractor shall modify the design, the construction procedure, or both. These modifications may include modifying the installation methods, increasing the bond length, or changing the micropile type. Any modification that necessitates changes to the structure shall be submitted as a revision to the working drawings and require the engineer's review and acceptance. Any modifications of design or construction procedures or cost of additional verification test piles and load testing shall be at no cost to the department. At the completion of verification testing, test piles shall be removed down to the elevation specified by the engineer.

C.2.2 Proof Load Testing Procedure

Perform proof load tests at all micropile locations. Upon completion of each test, the contractor shall submit a report stamped by a qualified professional engineer licensed in the State of Wisconsin of the test results for review and acceptance by the engineer.

Proof test piles to a maximum test load of 1.00 times the micropile Factored Design Load shown on the plans or shop drawings. Proof tests shall be made by incrementally loading the micropile in accordance to the following schedule, to be used for both compression and tension loading:

Proof Test Loading Schedule		
AL = Alignment Load FDL = Factored Design Load		
	LOAD	HOLD TIME
1	AL	1 minute
2	0.25 FDL	1 minute
3	0.45 FDL	1 minute
4	0.55 FDL	1 minute
5	0.65 FDL	1 minute
6	0.75 FDL	10 minutes
7	1.00 FDL (Maximum Test Load)	1 minute
8	AL	1 minute

The alignment load shall not exceed 5 percent of FDL. Dial gauges shall be reset to zero after the initial AL is applied.

C.2.2.1 Proof Load Testing Acceptance Criteria

The acceptance criteria for micropile proof load tests are:

- The micropile shall sustain the compression or tension 1.0 FDL test load with no more than ½" total vertical movement at the top of the pile, relative to the position of the top of the pile prior to testing.

If a proof-tested micropile fails to meet the acceptance criteria, the contractor shall immediately proof test another micropile within that footing. For failed micropiles and further construction of other piles, the contractor shall modify the design, the construction procedure, or both. These modifications may include installing replacement micropiles, incorporating additional micropiles to carry not more than 50% of the maximum test load attained on the failed micropile, post-grouting the tested pile and re-proof testing the pile, modifying installation methods, increasing the bond length, or changing the micropile type. Any modification that necessitates changes to the structure design shall require the engineer's prior review and acceptance. Any modifications of design or construction procedures, or cost of additional verification test piles and verification and/or proof load testing, or replacement production micropiles, shall be at no cost to the department.

D Measurement

The department will measure Micropile Verification Load Test and Micropile Proof Load Test 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.0060.4020	Micropile Verification Load Test	Each
SPV.0060.4030	Micropile Proof Load Test	Each

Payment is full compensation for testing micropiles and removing any deficient micropiles, if required; and for providing all design, materials, labor, equipment, tests, and incidentals to complete the contract work. Verification test piles are designated as sacrificial and are included in the cost of Micropile Verification Load Test. There will be no extra payment for grout overruns.

155. Deadman Tiebacks, Item SPV.0060.4040.

A Description

A.1 General

This special provision describes furnishing and installing tiebacks from tunnel walls to precast concrete deadman blocks and to existing deadman retaining walls. Perform work in accordance to the plans, and as hereinafter provided.

Install deadman tiebacks that shall develop the factored design load indicated on the plans in accordance to these special provisions.

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 5 years. Submit a list containing at least five projects where the contractor has installed similar deadman tiebacks. 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 owner's contact information consisting of an individual's name and current phone number. Contacts must be capable of verifying contractor's project participation.

Submit staff experience records of the contractor's 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 similar deadman tiebacks 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 similar deadman tiebacks with the contractor's organization.

All staff must be certified as an Adhesive Anchor Installer conforming to the certification requirements of the ACI-CRSI Adhesive Anchor Installer certification program.

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 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 AASHTO LRFD 5th edition for load factors and ACI 318-11 Appendix D 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). The working drawing, design submission and MPII must include certificates of compliance for the following materials, if used, as well as the equipment to be used to install the anchor system. The certificates must state that the material or assemblies to be provided will fully comply with the requirements of the contract.

1. Epoxy Adhesive
2. Cementitious Grout
3. Threaded bar;
4. Portland cement;
5. Bearing plates
6. Bulkhead steel.

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 steel elements of the deadman tieback, and qualification test reports for the chosen bonding agent complying with ACI 355.2 and ACI 355.4. The engineer may require the contractor to provide samples of any anchor material intended for use on the project. The engineer 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 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 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.
- Steel tendon, corrosion protection elements and/or mill reports.
- Bonding agent records indicating the following:
- Epoxy adhesive or cementitious grout type.
- Field test results.
- Bonding agent volume for bonded lengths.
- Epoxy or grout pressure.
- Show on the as-built plans the type of testing performed for each post tieback.
- Tieback test results (Proof test data with load-anchor elongation curves).
- Other records as required by standard spec 106.

A.4 Definitions

Anchor Point: The point at the end of a tieback anchor in an anchored structural element where the anchor force is considered to be completely transferred to the anchored structural element.

Bearing Plate: The steel plate, which distributes the anchor force to the structure.

Deadman Tieback: A system used to transfer tensile loads from new tunnel walls to deadman structural elements. A deadman tieback includes all threaded rods, couplers, anchorage devices, bearing plates, coatings, corrosion protection, and sheathings, if used.

Factored Design Load: The factored design load is the factored load using LRFD methodology that will be applied to the tieback anchor during its design life after stressing and testing have been completed.

Manufacturer's Printed Installation Instructions (MPII): Engineer-approved installation instructions, submitted before installation, that follow the same installation procedure used during laboratory testing under ACI 355.2 and ACI 355.4 of the chosen concrete anchor product.

Minimum Specified Ultimate Tensile Strength: The minimum breaking strength of the threaded rod as defined by the specified standard.

Total Anchor Length: The length of the anchor from anchor point to anchor point.

Proof Resistance: The resistance assured from testing of the deadman tieback.

B Materials

B.1 References

AASHTO Standards

- M85 Portland Cement
- M183 Structural Steel
- M275 Threadbar Prestressing Steel
- M222 High-Strength Low-alloy Structural Steel with 50,000 psi Minimum Yield Point to 4 Inches Thick
- M223 Specification for High-Stength Low-Alloy Structural Steel
- M278 Polyvinyl Chloride Tubing

ASTM Standards

- A-53 Specification for Steel Pipe
- A-153 Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- A-252 Specification for Welded and Seamless Steel Pipe Files
- A-500 Specification for Cold-formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
- A-572 Specification for High-Stength Low-Alloy Structural Steel
- A-722 Threadbar Prestressing Steel
- A-779 Compact Seven-wire, low relaxation strands
- D-1248 Specification for Welded and Seamless Steel Pipe Files
- D-1784 Specification for Rigid Poly Vinyl Chloride (PVC) Compounds and Chlorinated Poly Vinyl Chloride (CPVC) Compounds

- D-4101 Specification for Propylene Plastic Injection and Extrusion Materials
- E-488 Standard Test Methods for Strength of Anchors in Concrete Elements
- E-1512 Standard Test Methods for Test Bond Performance of Bonded Anchors

PTI (Post-Tensioning Institute) Standards

- "Guide Specification for Post-Tensioning Materials," Post-Tensioning Manual, 4th Edition.
- "Specification For Unbonded Single Strand Tendons," Post-Tensioning Manual, 1993.
- "Recommendations for Prestressed Rock and Soil Anchors," Post-Tensioning Institute, 3rd Edition.

B.2 Tieback Anchors

For cementitious grout, 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 steel and mixed in accordance to 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.

Fabricate the bearing plate from steel grade conforming to that as specified on the plans.

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 bar.
- Capable of withstanding abrasion, impact, and bending during handling and installation.
- Enable the threaded bar to elongate during testing and stressing.
- Allow the threaded bar to remain unbonded after lock-off.

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 anchor rods from a single bar. Additionally, the anchor rods must conform to the following:

- Steel bars conforming to AASHTO M275, or ASTM A722.

Use steel couplers capable of developing 95 percent of the minimum specified ultimate tensile strength of the bar.

Use a sheath as part of the corrosion protection system. Fabricate the sheath from one of the following:

- A polyethylene tube pulled or pushed over the prestressing steel. The polyethylene must be Type II, III, or IV as defined by ASTM D-1248 (or approved equal). The tubing must have a minimum wall thickness of 60 mils plus/minus 10 mils.
- A hot-melt extruded polypropylene tube. The polypropylene must be cell classification PP 210 B5554211 as defined by ASTM D-4101 (or approved equal). The tubing must have a minimum wall thickness of 60 mils plus/minus 10 mils.
- A hot-melt extruded polyethylene tube. The polyethylene must be high density Type III as defined by ASTM D-3350 and ASTM D1248 (or approved equal). The tubing must have a minimum wall thickness of 60 mils plus/minus 10 mils.
- Steel tubing conforming to ASTM A-500, minimum wall thickness of 0.20 inches.
- Steel pipe conforming to ASTM A-53, Schedule 40 minimum.
- Plastic pipe conforming to ASTM A-1185, Schedule 40 minimum.
- A corrugated tube conforming to the requirement of the rod bond length encapsulation.

Galvanize all steel parts to provide a second level of corrosion protection conforming to ASTM A-153.

Spacers must permit grease to freely flow up the drill hole. Fabricate spacers from plastic, steel, or material that is non-detrimental to the 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 corrosion protection from a steel pipe or tube conforming to the requirements of ASTM A-53 for pipe or ASTM A-500 for tubing. The trumpet must have a minimum wall thickness of 0.125 inches for diameters up to four inches and 0.20 inches for larger diameters.

Use potable water for mixing grout.

Fabricate rods in accordance to the following specifications:

- The rods may be either shop or field fabricated from threaded rods or materials conforming to the requirements of the Materials subsection of these special provisions. Fabricate the rod as shown on the approved working drawings.
- Position spacers so their center-to-center spacing does not exceed 10 feet. In addition, locate the upper spacer a maximum of 5 feet from the top of the rod bond length, and locate the lower spacer a maximum of 5 feet from the bottom of the rod bond length.
- All rods will be ungrouted, protected by grease inside a sheath. For the corrosion protection of the tieback anchor, 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 rod, fill the void between the rod and the sheath.
- Size the bearing plates so that:
- 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 rod is applied.
- 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. Trumpets filled with corrosion-inhibiting grease must have a permanent Buna-N synthetic rubber (or approved equal by the engineer) seal provided between the trumpet and the unbonded length corrosion protection.

Submit the chosen bonding agency for approval along with the MPII plan as described in subsection A.3 above. Consider using a bonding agent from the department's approved products list for Type L concrete masonry anchors that conforms to the material properties criteria on the plans. If the contractor prefers to use a bonding agent that's not on the department's approved products list, provide documentation that proves the preferred bonding agent satisfies the same criteria as the department's approved list of Type L concrete masonry anchors, as well as the material properties criteria on the plans.

Provide PVC tube sleeves for settlement protection as the plans show. Coat the end surfaces of the settlement sleeve with coal-tar epoxy conforming to USACE C-200 and C-200a.

Store all bonding agents conforming to the MPII plan. Determine characteristic bond stress values assuming the following field conditions and installation procedures:

1. Sustained loading.
2. Uncracked concrete.
3. Anchor sizes as shown on the plans.
4. Rock drilling (no core drilling unless permitted by the engineer and accounted for in the characteristic bond stress).

5. Dry hole.
6. Maximum long-term temperature = 75°F, Maximum short-term temperature = 104°F.
7. Existing concrete deadman: 40-year old concrete, $f'c_{min}$ = 3500 psi.
8. Not susceptible to chemical attack.

Damage to the threaded rods because of abrasions, cuts, nicks, welds and weld splatter will be cause for rejection by the 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 will reject the affected rods.

Use care in handling and storing the threaded rods at the site. Before inserting a rod 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 and adhesive or grout of threaded rod into existing deadman structural elements that complies with the requirements on the contract plans. Install anchors according to supplier's recommended installation to develop the required structural resistance of the threaded rod to carry the factored design loads as the plans show.

C.1.2 Drilling Method

The contractor shall drill with a non-carbide tip such that no reinforcement of the existing structure is cut when installing deadman tieback anchors. Only rock drilling (no core drilling) is allowed. Ensure that all field conditions assumed in the determination of characteristic bond stress, as detailed in subsection B.2, are in force during anchor installation.

Before drilling, all deadman tiebacks within an existing deadman structural element must be located both on the existing deadman and the new tunnel wall face to ensure proper installation. Contractor shall take care to ensure that drilled tieback holes do not require the rod to be bent in order to enable the bearing plate to be connected to the new tunnel wall. At the point of entry into the deadman structural element, the horizontal angle made by the concrete anchor and the deadman structural element must be within plus/minus three degrees of a line drawn perpendicular to the plane of the deadman structural element unless otherwise shown on the plans or approved working drawings. All holes into deadman elements shall be normal to the surface of the element unless otherwise shown on the plans or approved working drawings. Do not extend tiebacks beyond the right-of-way or easement limits shown on the plans.

The rod must be inserted into the drill hole to the desired depth without difficulty. When the rod 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 rods into the hole.

C.1.3 Deadman Connection to Anchor Method

Connect the tie rod anchor to the deadman in accordance to the details on the plans for each location, and the threaded rod supplier's recommendations.

C.1.4 Anchor Testing for Embedments into Existing Deadman Elements

C.1.4.1 General

Before coupling the anchor rod into the new tunnel wall, perform proof anchor testing on each of the embedded anchors into the existing deadman elements to the factored design load indicated on the plans.

Perform the proof test by incrementally loading the anchor rod in accordance to the following schedule, and conforming to the procedures in ASTM E-488 and E-1512. Raise the load from one increment to another immediately after recording the anchor rod movement. Measure and record the anchor rod 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 anchor rod movement with respect to a fixed reference at 1, 2, 3, 4, 5, 6, and 10 minutes. If the anchor rod movement between one minute and ten minutes exceeds 0.01 inches, hold the maximum test load for an additional 50 minutes. If the load-hold period is extended, record the anchor rod movements at 15, 20, 25, 30, 45 and 60 minutes.

Proof Test Schedule

Load
AL (0.05 FDL)
0.25 FDL
0.50 FDL
0.75 FDL
1.00 FDL (Max. test load)

Where, AL = Alignment Load
FDL = Factored Design Load for Tieback

Plot the anchor rod 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.1.4.2 Concrete Anchor Proof Load Test Acceptance Criteria

- A proof tested anchor rod with a 10-minute load-hold period is acceptable if the:
- The tieback resists the maximum test load with less than 0.01-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 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 unbonded length plus 50 percent of the bonded length.

A proof tested anchor rod with a 60-minute load-hold period acceptable if the:

- Anchor carries the maximum test load with a creep rate that does not exceed 0.02 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 anchor rods at the maximum test load does not exceed 80 percent of the theoretical elastic elongation of the unbonded length, replace the anchor rods at no additional cost to the department.

Anchor rods that have a creep rate greater than 0.02-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 concrete anchor after the load has been allowed to stabilize for ten minutes.

When an anchor rod fails, modify the design and/or the construction procedures. These modifications may include, but are not limited to, installing replacement anchor rods, reducing the factored design load by increasing the number of deadman tiebacks, modifying the installation methods, increasing the bond length or changing the anchor type. Any modifications of design or construction procedures are at no change in the contract price or contract time, and must be approved by the engineer.

C.1.5 Anchor Testing forThrough-Bolted Connections to Precast Concrete Blocks

During tightening of the deadman tieback anchor rods to the new tunnel walls, measure to ensure that the heave of the top ground surface does not extend beyond 1 inch above the previous ground surface grade. If this limit is reached, stop tightening operations and recompact the ground above the anchor.

C.2 Installation of Trumpet and Anchorage

The corrosion protection surrounding the length of the rod 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 length of the rod must not contact the bearing plate or the anchor head. If the protection is too long, trim the corrosion protection to prevent contact.

Completely fill the trumpet with corrosion inhibiting grease. Trumpet grease can be placed any time during construction. Demonstrate to the engineer that the procedures selected for placement of grease will produce a completely filled trumpet.

Cover all anchorages permanently exposed to the atmosphere with a corrosion inhibiting grease-filled cover. Demonstrate to the engineer that the procedures selected for placement of grease will produce a completely filled cover.

C.3 Deadman Tieback Anchor Tightening

C.3.1 General

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. Do not apply any load greater than ten percent of the factored design load.

C.3.2 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.

C.4 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 or the tunnel wall. Coat the interface between the anchor and the deadman or tunnel wall with sufficient coal-tar epoxy per USACE C-200 and C-200a to ensure a seal to prevent water entry. Set the settlement sleeve so that the anchor is located in the bottom of the sleeve.

D Measurement
The department will measure Deadman Tiebacks as each individual unit, acceptably completed. Anchorages installed that are not shown in the plans or ordered by the engineer will not be measured for payment.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.4040	Deadman Tiebacks	Each

Payment is full compensation for furnishing and installing the tieback bulkheads in new tunnel walls and behind new precast deadman blocks, as applicable; furnishing, drilling and installing adhesive or grouted anchorages in existing deadman locations as specified in the contract plans, as applicable; furnishing and installing threaded rods and couplers; testing; furnishing and installing anchorage corrosion protection; and for furnishing and installing settlement sleeves.

156. Precast Concrete Deadman Block, Item SPV.0060.4050; 24-Inch Prestressed Inverted T-Beam, Item SPV.0060.4060.

A Description
This work consists of fabricating, furnishing, transporting, and installing precast concrete deadman blocks to hold back cast-in-place tunnel walls via passive pressure and prestressed concrete inverted T-beams to support the tunnel roof in accordance to standard spec 503, as shown on the plans, and as hereinafter provided.

The contractor shall furnish all labor, plant, materials, equipment and services necessary to fabricate the precast concrete deadman units and prestressed concrete inverted T-beam units in accordance to the contract plans and these special provisions.

A.1 Casting Plant Standards and Prequalification
The manufacturer of bid item SPV.0060.4050 shall be certified in accordance to standard spec 106.3.3.3.1. The manufacturer of bid item SPV.0060.4060 shall be certified in accordance to standard spec 106.3.3.3.2.

A.1 Submittals
Submit shop drawings for the Prestressed Inverted T-beams for approval or rejection by the engineer prior to fabrication. Allow a review period of 21 calendar days by the department prior to fabrication of the beams.

Include all information necessary in the shop drawings to completely fabricate the beams. Include, as a minimum, the beam length, cross-section with dimensions, end-of-beam details, strand size and location, initial prestressing jacking force, initial and final concrete strengths, reinforcement bar size and spacing, projected length of bars extending out of the section, and required number and size of handling devices.

B Materials

Provide all materials in accordance to standard spec 503 and as shown on the plans, with the exceptions as hereinafter provided.

B.1 Embedded Items Other than Reinforcing Steel

Install embedded items accurately located as shown on the plans.

Galvanize electroplate, or electrogalvanize inserts for brackets, bolts, washers, etc., per ASTM A153. Provide pipe sleeves conforming to ASTM A53 with a coating rating no less than G60.

Provide all threaded items free of concrete and grout deposits.

C Construction

Fabricate all pieces in accordance to standard spec 503 and as shown on the plans, with the exceptions as hereinafter provided.

C.1 Proportioning Concrete

C.1.1 Concrete Mix Criteria for Precast Concrete Deadman Blocks

Provide a concrete mix that conforms to the following criteria:

1. Cement Content: 700 lbs minimum (total of cement and/or cementitious materials) per cubic yard.
2. Water/Cement Ratio: 0.40 maximum (free water content of the aggregates shall be included in the total water in determining the total water/cement ratio).
3. Concrete Compressive Strength: per plan.
4. Coarse Aggregate: 60% minimum (Aggregates incorporated in the mix should be surface saturated dry (SSD). Moisture in the aggregate shall be measured by methods satisfactory to the engineer, which will give results to within one pound for each 100 pounds of aggregate. Moisture contents shall be run daily for each mix design.)

Submit mix designs for approval before precasting any deadman blocks under this contract.

C.2 Dimensional Tolerances

Overall Dimensions	T-Beams	Deadman Blocks
Length	+1/4", -1/2"	+/-1/4"
Width	+/-1/4"	+/-1/4"
Height	+/-1/4"	+/-1/4"
Cross Sectional Dimensions		
Depth Top Slab	+/-3/8"	
Depth Bottom Slab	+1/2", -1/8"	
Wall Thickness	+/-3/8"	+/-1/2"
Out of Square (per side)	+/-1/8"	+/-1/2"
Horizontal Alignment		
Variation from straight line	+/-1/8"	
Camber at C/L of Span		
(Measured at bottom of span)	0" to 3/8"	
Bearing Area		
Variation from plane surface	1/8"	1/8"
Square Ends		
Out of square (per end)	3/8"	3/8"
Prestressing Steel		
Vertical and Horizontal	1/4"	
Embedded Lifting Devices		+/-1/2" (Plumb: +/-1/8")
Tilt	+/-1/8"	

D Measurement

The department will measure Precast Concrete Deadman Block and 24-Inch Prestressed Inverted T-Beam 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.0060.4050	Precast Concrete Deadman Block	Each
SPV.0060.4060	24-Inch Prestressed Inverted T-Beam	Each

Payment for the precast and prestressed bid items is full compensation for providing units, including all concrete, grout, mortar, reinforcement steel, tie bars, prestressing strands, anchor plates, and other embedded metal; for casting and curing concrete; for jacking and prestressing; for furnishing all handling, transporting and erecting the units; and for discarding and replacing units damaged by improper handling or storage.

157. Temporary Access Gates, Item SPV.0060.4070.

A Description

This work shall consist of 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. Gates shall be equipped with a chain or cable and a key lock. Gates shall remain locked in the closed position when not in use. Gates are to be removed upon completion of the project.

B (Vacant)

C Construction

Construct these gates at least 12 feet outside of any railroad tracks. Gates must be constructed so they do not swing toward the railroad tracks.

Provide any approach work necessary to move equipment up to the UPRR tracks, in-between the UPRR tracks and through the gate. The track crossing will be installed by the UPRR. Provide any drainage measures necessary to maintain the existing drainage when the approach work, crossings and gates are in place. Remove these gates, any approach work and any drainage measures, and restore the existing drainage pattern.

D Measurement

The department will measure Temporary Access Gates as each individual access gate, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.4070	Temporary Access Gates	Each

Payment is full compensation for furnishing all materials; for erecting posts and gates; for constructing any necessary approach work; for constructing any drainage measures; and for removing all items discussed in this special provision.

158. Resilient Wedge Gate Valve, 8-Inch, Item SPV.0060.5000; Resilient Wedge Gate Valve, 6-Inch, Item SPV.0060.5001.

A Description

This work includes providing and installing resilient wedge gate 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 C509, 200 psi working pressure; non-rising bronze stem; valve opens counter-clockwise.

Internal parts accessible without removing main body from pressure line.

Internal diameter of valve shall be equal to or greater than connection pipe diameter.

Furnish with mechanical joint ends and 2-inch operating nut. Use corrosion resistant steel nuts and bolts, NSS Technologies, Inc., Cor-Blue or an approved equal.

B.2 Valve Box Adaptor

Furnish epoxy-coated, 1/4-inch steel, rubber gasket and size to fit valve. Similar and equal to adaptors manufactured by Adaptor, Inc., West Allis, WI.

B.3 Polyethylene Sheeting for Pipe Corrosion Protection

Polyethylene sheeting conforming to ASTM D4976, Type I, Class B, Color: Black, Grade E-1, 1200 psi tensile strength, minimum thickness of 8 mil. Tube diameter or sheet width shall conform to AWWA C105.

Furnish tape for polyethylene sheeting that is 2-inch wide, black tape with rubber adhesive and minimum 9 mil polyethylene backing. Tape shall be 3M™ Preservation Sealing Tape 481 or an approved equal.

C Construction

C.1 General

Install valve in closed position and in accordance to manufacturer's instructions.

Set valve on solid masonry concrete blocking (16-Inch x 8-Inch x 4-Inch) with long dimension of block perpendicular to water main and level.

Extend bedding and compact up to elevation required to set valve box adaptor over valve.

Set valve box on valve box adaptor. Verify centered location and check installation by applying key over valve nut to verify access and operation.

Place additional bedding material to a minimum depth of 6 inches around valve box and compact to prevent box or adaptor from shifting.

Extend valve box to subgrade 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 or paving contractor.

Coat internal cast iron surfaces with two coats of corrosion resistant coating.

D Measurement
The department will measure Resilient Wedge Gate Valve, 8-Inch and Resilient Wedge Gate Valve, 6-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.0060.5000	Resilient Wedge Gate Valve, 8-Inch	Each
SPV.0060.5001	Resilient Wedge Gate Valve, 6-Inch	Each

Payment is full compensation for furnishing and installing all materials; excavating, backfilling, and compacting.

159. Hydrant Assembly, Item SPV.0060.5002.

A Description
This work includes providing and installing new hydrants at locations indicated in the plans, conforming to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and as hereinafter provided.

B Materials
B.1 New Hydrant Assembly
Provide new water main hydrants and hydrant lead piping boxes meeting the requirements of the City of Wauwatosa.

Hydrant shall be a AWWA C502 hydrant with all operating nuts and hose connections meeting City of Wauwatosa size requirements.

B.2 Hydrant Lead Piping
Ductile iron (DI) piping shall be in accordance 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.

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., Cor-Blue or approved equal.

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 an approved equal.

C Construction

C.1 General

In accordance to Wisconsin Statute 182.0175, "Damage to Transmission Facilities," Excavator, as defined in 182.0175(1)(bm), shall be solely responsible to provide advance notice to “Diggers Hotline, Inc.” (800) 242-8511 not less than three working days prior to commencement of any Excavation, as defined in the statute, required to perform work contained in this Project, and further, Excavator shall comply with all other requirements of this Statute relative to Excavation.

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.

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.

Locate hydrant at municipal standard distance behind face of curb and set lowest hose connection at utility standard dimension above proposed finished grade.

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 item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.5002	Hydrant Assembly	Each

Payment is full compensation for furnishing and installing all materials; excavating, backfilling, and compacting.

160. Hydrant Assembly Relocation, Item SPV.0060.5003.

A Description
This work includes relocating existing hydrants or installing new hydrants at locations indicated in the plans, conforming to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and as hereinafter provided. Reference plan notes for hydrant relocation specific requirements.

B Materials
B.1 General
Salvage existing hydrant for reinstallation or provide new hydrant.

Provide caps for capping and sealing existing tee, salvage and re-install designated hydrant and lead piping and provide a new tee for cut-in water main connection, valve, valve adaptor and valve box meeting the requirements of the City of Wauwatosa.

B.2 Fittings
Fittings shall conform to AWWA C110, centrifugally cast in metal or sand-lined molds. Use of compact fittings conforming to AWWA C153 is acceptable.

In no case shall fitting grade rating less than adjoining pipe.

Fittings shall be from same manufacturer as pipe.

Nuts and bolts for joints and fittings shall be corrosion resistant steel, NSS Technologies, Inc., Cor-Blue or approved equal.

B.3 Valve Box Adaptor
Furnish epoxy-coated, 1/4-inch steel, rubber gasket and size to fit valve. Similar and equal to adaptors manufactured by Adaptor, Inc., West Allis, WI.

B.4 Valve Box
Furnish cast iron, 5-1/4 inch diameter (minimum) shaft; round base; 5-1/4 inch drop lid marked "WATER"; length of assembly sized to span top of main to finished grade with a minimum remaining adjustment of an additional 3 inches.

B.5 Polyethylene Sheeting for Pipe Corrosion Protection
Furnish polyethylene sheeting conforming to ASTM D4976, Type I, Class B, color black, Grade E-1, 1200 psi tensile strength, minimum thickness of 8 mil. Tube diameter or sheet width shall conform to AWWA C105.

Furnish tape for polyethylene sheeting that is 2-inch wide, black tape with rubber adhesive and minimum 9 mil polyethylene backing. Tape shall be 3M™ Preservation Sealing Tape 481 or an approved equal.

C Construction
C.1 General
In accordance to Wisconsin Statute 182.0175, "Damage to Transmission Facilities," Excavator, as defined in 182.0175(1)(bm), shall be solely responsible to provide advance notice to “Diggers Hotline, Inc.” (800) 242-8511 not less than three working days prior to commencement of any Excavation, as defined in the statute, required to perform work contained in this Project, and further, Excavator shall comply with all other requirements of this Statute relative to Excavation.

Before beginning excavation of trench, contractor shall uncover existing hydrant tee connection and cap after removing hydrant lead pipe and hydrant for re-location. Contractor shall then uncover water main to which re-located hydrant is to be re-located. Provide new hydrant tee and connect to salvaged lead piping and verify line, grade and connection required. Clean all salvaged products to ensure required installation requirements are achieved.

C.2 Installation of Hydrant Assembly
Provide salvaged hydrant and hydrant lead, new 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 re-located hydrant to 6 inches above drain holes in hydrant stem.

Set re-located hydrant plumb and centerline of hydrant vertical.

Solidly buttress re-located hydrant against trench wall.

Join pipe and fittings by means of a rubber gasket push-on joints conforming to AWWA C111.

Locate re-located hydrant at City of Wauwatosa standard distance behind face of curb and set lowest hose connection at utility standard dimension above proposed finished grade.

D Measurement
The department will measure Hydrant Assembly Relocation 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 item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.5003	Hydrant Assembly Relocation	Each

Payment is full compensation for furnishing and installing all materials; and for excavating, backfilling, and compacting.

161. Copper Water Service, 1-Inch, Item SPV.0060.5004.

A Description
This work includes providing and installing 1-inch copper water service line 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
1-inch copper water service material shall be in accordance to ASTM B88, Type K, soft annealed seamless copper tubing.

2-inch closed cell high-density polystyrene sheet insulation, (Blue Board.)

All fittings including saddles, curb stop and box shall meet City of Wauwatosa standards and be approved by 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
The location of 1-Inch copper tubing 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.

Provide and install new and approved curb stop 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 Copper Water Service, 1-Inch 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.0060.5004	Copper Water Service, 1-Inch	Each

Payment is full compensation for furnishing and installing all materials; excavating, backfilling, and
compacting.

162. Ductile Iron (DI), Class 55, Water Service, 6-Inch, Item SPV.0060.5005.

A Description
This work includes providing and installing ductile iron water service piping at locations indicated in the plans, conforming to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and as hereinafter provided.

B Materials
B.1 General
Ductile iron (DI) piping shall be in accordance to AWWA C150, Class 55. Design pipe with joint ends designed for rubber gasket push-on joints conforming to AWWA C111.

Cast in or stamp on pipe manufacturer's mark, year of production, and "DI' or "DUCTILE.'

Pipe shall be cement mortar lined and have internal and external bituminous coats.

B.2 Fittings
Fittings shall conform to AWWA C110, centrifugally cast in metal or sand-lined molds. Use of compact fittings conforming to AWWA C153 is acceptable.

In no case shall fitting grade rating be less than adjoining pipe.

Fittings shall be from same manufacturer as pipe.

Nuts and bolts for joints and fittings shall be corrosion resistant steel, NSS Technologies, Inc., Cor-Blue or approved equal.

B.3 Polyethylene Sheeting for Pipe Corrosion Protection
Furnish polyethylene sheeting conforming to ASTM D4976, Type I, Class B, color black, Grade E-1, 1200 psi tensile strength, minimum thickness of 8 mil. Tube diameter or sheet width shall conform to AWWA C105.

Furnish tape for polyethylene sheeting that is 2-inch wide, black tape with rubber adhesive and minimum 9 mil polyethylene backing. Tape shall be 3M™ Preservation Sealing Tape 481 or an approved equal.

B.4 Trench Insulation
Furnish extruded polystyrene board conforming to ASTM C578, Type V, rigid, closed cell type, with integral high density skin, Dow Chemical Company STYROFOAM™ Highload 100 or an approved equal.

Thermal Resistance: Typical 5 year aged value of R-5 per inch of thickness per ASTM C518.

Board Size: 24 x 96 x 2-inch thick. Square edges.

Compressive Strength: Minimum 100 psi per ASTM D1621.

Water Absorption: 0.7 percent by volume maximum per ASTM D2842.

B.5 Concrete Buttress
Furnish ASTM C94 ready mixed concrete with minimum 3000 psi 28 day compressive strength, minimum 4.5 bags cement, maximum 4 to 5-inch slump, and maximum aggregate size 3/4-inch.

All bedding, cover and backfill materials shall meet City of Wauwatosa Standards and be approved by the City of Wauwatosa.

C Construction
C.1 General
In accordance to Wisconsin Statute 182.0175, "Damage to Transmission Facilities," Excavator, as defined in 182.0175(1)(bm), shall be solely responsible to provide advance notice to “Diggers Hotline, Inc.” (800) 242-8511 not less than three working days prior to commencement of any Excavation, as defined in the statute, required to perform work contained in this Project, and further, Excavator shall comply with all other requirements of this Statute relative to Excavation.

Before beginning excavation of trench, contractor shall uncover stub end of existing water main to which relay is to connect to permit adjustments in line and grade and verify connection required.

C.2 Installation of Ductile Iron Pipe

Join pipe and fittings by means of a compression type rubber gasket restrained joints, American Cast Iron Pipe Flex-Ring®, Clow Super Lock, Griffin Pipe SNAP-LOK®, U.S. Pipe TR FLEX®, or an approved equal.

Excavation and backfill for buried pipe shall conform to the Standard Specifications for Sewer and Water.

Remove lumped subsoil, boulders, and rock. If rock is encountered, remove to provide a clearance of at least 6 inches below and on each side of pipe, valves, and fittings.

Lay and maintain water mains to lines and grades established in the plans with fittings, valves, and hydrants at required locations.

Trench preparation shall proceed in advance of pipe installation only as far as can be backfilled in the same day.

Contractor shall not deviate from types of excavation indicated in the plans without prior concurrence of engineer except in case of roadways, driveways, and obstructions that may be indicated in the plans as open trench sections.

Place and shape bedding material to pipe, to a minimum depth of three inches under bell and four inches under spigot and compact to 95 percent modified proctor density.

Lower water main, fittings, valves, and hydrants carefully into trench, by means of derrick, ropes, or other suitable tools or equipment, to prevent damage to water main materials and protect coatings and linings.

Lay pipe with bell ends facing direction of laying. When grade exceeds 2 feet of rise per 100 feet of trench, bells shall face upgrade.

Provide holes for bells at each joint but no larger than necessary for joint assembly and assurance that pipe barrel will lie flat on trench bedding.

Trench bedding shall be true and even in order to provide support for full length of pipe barrel, except a slight depression may be provided to allow withdrawal of pipe slings or other lifting tackle.

If pipe laying crew cannot put pipe into trench and in place without getting earth into it, engineer may require placing, before lowering pipe into trench, a heavy, tightly woven, canvas bag of suitable size over each end of pipe and leaving there until connected to adjacent pipe.

Do not place debris, tools, clothing, or other materials in pipe during laying operations.

Assemble joint and bring pipe to correct line and grade as each length of pipe is placed in trench.

Take precautions to prevent foreign materials from entering joint space and carefully check joint recess for foreign material before installing gasket.

Remove lumps of clay, mud, cinders, and similar materials that may have accumulated on surface of pipe during storage or laying and encase pipe in polyethylene sheeting in accordance with AWWA C105.

Secure pipe in place with bedding material, placed by hand or equally careful means, keeping bell end open. Remove pipe and fittings that do not allow sufficient and uniform space for joints and replace with pipe and fittings of proper dimensions to ensure such uniform space.

Upon daily and temporary completion of pipe installation, close open ends of pipe by a water-tight plug or other means approved by engineer. This provision applies during daytime inactivity as well as overnight.

If water is in trench, maintain pipe seal in place until water level is lowered four inches below pipe invert.

Whenever it becomes necessary to lay a main over, under, or around a known obstruction, contractor shall furnish and install required fittings. Laying of such fittings will be paid for at linear foot price for each size of main. No additional compensation will be paid to contractor for any expenses incurred because of such obstruction.

When an unknown underground structure interferes with work to such an extent that an alteration of the plans is required and alteration results in a change in cost to contractor, engineer will issue a written order for such altered work, specifying basis of payment or credit for such altered work.

Keep interior and exterior of pipe clean and free from foreign material before installation. Provide necessary means to wipe, brush, swab, or air blast to remove any foreign material from interior of pipe as instructed by pipe manufacturer and as directed by engineer.

Provide and place approved bedding sand and cover under and above water service to depths indicated in the plans. Provide and install crushed concrete backfill to depths indicated. Compact bedding sand and cover, and crushed concrete backfill to 95% modified proctor density.

D Measurement
The department will measure Ductile Iron (DI), Class 55 Water Service, 6-Inch by each individual service, 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.0060.5005	Ductile Iron (DI), Class 55 Water Service, 6-Inch	Each

Payment is full compensation for furnishing and installing all materials; and for excavating, backfilling, and compacting.

163. Reconstruct MMSD Manhole, Item SPV.0060.5006; Reconstruct Sanitary Manhole, Item SPV.0060.5013.

A Description
This work includes reconstructing a sanitary manhole to an elevation as determined by the engineer, in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, and as hereinafter provided.

B Materials
B.1 Manhole
Manhole barrel sections shall be constructed of precast reinforced concrete sections. Precast manholes and tops shall conform to ASTM Specifications, C478, latest revision.

B.2 Manhole Seal
Sanitary manhole seal–internal/external, as shown in the construction details on the plans, shall meet the material requirements of section 8.42.3 and the performance requirements of section 8.42.4 of the Standard Specifications for Sewer and Water Construction, latest edition.

B.3 Joints
Joints for precast manholes shall meet the requirements of ASTM C-443, latest revision, except that sealant shall be butyl rubber gasket or butyl rubber rope. Flexible butyl rubber gaskets or rope shall comply with the physical requirements for Type "B" gaskets in AASHTO Designation M-198, or Federal Specification SSS-00210-A, sealing compound, preformed plastic for expansion joints and pipe joints.

B.4 Steps
All manholes shall be provided with steps equally spaced vertically on center installed by the manufacturer as shown on the standard detail sheet. Steps shall be embedded into the riser or conical top section of the wall a minimum of 3 inches. Manhole steps shall be Type PS-2-BG as manufactured by M.A. Industries, Peachtree City, GA 30269; or equal. Provide certified test data that the steps are capable of withstanding an 800-

pound vertical load without sustaining more than a 3/8-inch permanent set when tested in accordance to Section 10 of ASTM C 497.

B.5 Elastometric Waterproofing Sealer
Elastometric waterproofing membrane shall be a single component, bitumen-modified, moisture-curing polyurethane similar to TREMproof 60 as manufactured by Tremco, 10701 Shaker Blvd., Cleveland, Ohio 44104; Duramem V500 as manufactured by Pecora Corporation, 2601 Oakland Avenue, Garland, Texas 75040; Thiodeck C.F. as manufactured by Toch/Carboline Company, 350 Hanley Industrial Court, St. Louis, Missouri 63144; or equal.

B.6 Plastic Sheet
Plastic sheet shall be clear plastic, minimum 4 mils. thick, of length and width to cover elastometric waterproofing sealer.

B.7 Granular Backfill
Granular backfill shall consist of hard durable particles or fragments of stone, gravel, or sand. Granular backfill shall conform to the following grading requirements:

GRADING REQUIREMENTS FOR GRANULAR BACKFILL

Sieve Sizes	Percent Passing by Weight
3 inches	100
2 inches	95 – 100
No. 4	35 - 60
No. 200	5 - 15

C Construction
Reconstruct all manholes to conform to the detail on the standard detail sheet and in the locations shown in the plans.

C.1 Backfill
Backfill with granular backfill material. Place in suitable lifts not exceeding 8 inches loose depth and compact each lift to a minimum of 90 percent of maximum density as determined by AASHTO T 180. Compact with mechanical vibrating or impact tampers.

Remove all form materials and trash from the excavation before placing any backfill. Backfill around manholes only after the concrete has attained 2/3 of the specified compressive strength. Obtain the engineer's approval of concrete work and attained strength prior to backfilling. Backfill shall be brought up uniformly around manholes and structures to prevent unbalanced lateral loading.

Do not operate earth-moving equipment within 5 feet of walls of manholes for the purpose of depositing or compacting backfill materials. Compact backfill adjacent to concrete walls with hand-operated tampers or other equipment that will not damage the manhole.

C.2 Elastometric Waterproofing Sealer

Elastomeric waterproofing sealer shall be applied to all gravity sewer manholes. Thoroughly sandblast the section of the manhole frame over which the sealer is to be applied, the manhole header, extension and cone and the top 12 inches of the manhole riser. All surfaces shall be free of dust, oil, rust, loose materials and other contaminants. Take necessary precautions to prevent rebound from the sandblasting operation to enter the sewer system. If the mortar between grade rings or brick courses is removed to a depth greater than 1/4 inch by the sandblasting, the joints shall be refilled with mortar as specified herein. All new masonry work shall be cured a minimum of 24 hours prior to applying the waterproofing sealer.

Apply the 4-inch wide bond breaker tape completely around the manhole circumference and centered over the mortar joint between the manhole frame and the manhole extension. Immediately before applying the sealer, wipe all surfaces with a cleaner and immediately prime. The cleaner and primer shall be furnished by the sealer manufacturer. Apply the sealer with a trowel, roller or by spraying to achieve a thickness of not less than 100 wet mils. Do not apply the sealer when the ambient temperature is below 40 degrees F. The sealer shall extend from 9 inches below the bottom of the manhole cone and be carried over the top and onto the flange of the frame a minimum of 5 inches.

Allow the sealer to cure a minimum of 24 hours before backfilling when the ambient temperature is above 70 degrees F, and 48 hours when the ambient temperature is below 70 degrees F. Immediately before backfilling, loosely wrap two layers of 4 mil plastic sheet over the sealed area to prevent direct contact between the sealer and the backfill material.

D Measurement

The department will measure Reconstruct MMSD Manhole and Reconstruct Sanitary Manhole by 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.0060.5006	Reconstruct MMDS Manhole	Each
SPV.0060.5013	Reconstruct and Installing Sanitary Manhole	Each

Payment is full compensation for providing and installing all required materials, including masonry and fittings: for salvaging and reinstalling existing covers, including frames, grates or lids; for furnishing all necessary excavation, backfilling, disposing of surplus material, and for cleaning out and restoring the work site.

164. Sanitary Manhole Type A, Item SPV. 0060.5007.

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 in accordance 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 tops 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 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.

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 in accordance 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 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.0060.5007	Sanitary Manhole Type A	Each

Payment is full compensation for furnishing and installing all materials including adjusting rings, masonry, steps, and internal frame/chimney seals; excavating, dewatering, backfilling, and compacting; for disposing of surplus materials; and for cleaning out and restoring the structure.

165. Sanitary Manhole Type D, Item SPV. 0060.5008.

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 in accordance 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 manholes 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 tops 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" 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 new Cretex, NPC Flexrib, or approved equal internal frame/chimney Seal, as shown in the construction details on the plans, shall meet the material requirements of section 8.42.3 and the performance requirements of section 8.42.4 of the 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 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 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.

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 in accordance 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.0060.5008	Sanitary Manhole Type D	Each

Payment is full compensation for furnishing and installing all materials including adjusting rings, precast concrete barrel sections, exterior drop pipe, masonry, steps, and internal frame/chimney seals; for excavating, dewatering, backfilling, and compacting; for disposing of surplus materials; and for cleaning out and restoring the structure.

166. Reconnect Sanitary Lateral 6-Inch, Item SPV. 0060.5009.

A Description
This work includes reconnecting existing sanitary sewer laterals to the new sanitary sewer, including installing a 8-Inch x 6-Inch wye connection, and other fittings as necessary to complete the work in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition.

B Materials
B.1 General
All materials and work required to reconnect the sanitary sewer laterals will conform to the Standard Specifications for Sewer and Water.

B.2 Lateral Reconnection
The contractor shall use prefabricated wyes. Pipe material shall be PVC SDR-35 conforming to ASTM D-3034, with rubber gasket joints conforming to ASTM F-477.

B.3 Joint
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.

Encased the coupling in a minimum of 6 inches of concrete around the entire repair coupling and at least12 inches from each side of the joint. Joints for reconnecting laterals of similar PVC SDR-35 pipe shall be made with new PVC SDR-35 gasketed pipe.

The cost of connecting dissimilar pipe materials with nonshear flexible compression coupling is incidental to the cost of sanitary sewer pipe.

C Construction

Install lateral connections at the sewer main to match the existing lateral invert elevation at location shown in plans. Lay sewer laterals, to existing slope, or to a minimum grade of 1/4 inch to a foot. Install risers 6-inches in diameter on all sewers over 10 feet in depth. Encase lateral connections in an envelope of compacted bedding material.

D Measurement

The department will measure Reconnect Sanitary Lateral 6-Inch as a unit for each individual lateral reconnection, 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.0060.5009	Reconnect Sanitary Lateral 6-inch	Each

Payment is full compensation for furnishing and installing all materials including joints and wye connections; for excavating, backfilling, and compacting; and for disposing of surplus materials.

167. Reconnect Sanitary Lateral 4-Inch, Item SPV. 0060.5010.

A Description

This work includes reconnecting existing sanitary sewer laterals to the new sanitary sewer, including installing a 8-Inch x 4-Inch wye connection, and other fittings as necessary to complete the work in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition.

B Materials

B.1 General

All materials and work required to reconstruct the sanitary sewer laterals will conform to the Standard Specifications for Sewer and Water.

B.2 Lateral Reconnection

The contractor shall use prefabricated wyes. Pipe material shall be PVC SDR-35 conforming to ASTM D-3034, with rubber gasket joints conforming to ASTM F-477.

B.3 Joint
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.

Encased the coupling in a minimum of 6 inches of concrete around the entire repair coupling and at least12 inches from each side of the joint. Joints for reconnecting laterals of similar PVC SDR-35 pipe shall be made with new PVC SDR-35 gasketed pipe.

The cost of connecting dissimilar pipe materials with nonshear flexible compression coupling is incidental to the cost of sanitary sewer pipe.

C Construction
Install lateral connections at the sewer main to match the existing lateral invert elevation at location shown in plans. Lay sewer laterals, to existing slope, or to a minimum grade of 1/4 inch to a foot. Install risers 6-inches in diameter on all sewers over 10 feet in depth. Encase lateral connections in an envelope of compacted bedding material.

There are two existing 4-Inch laterals to the property located at 10613 West Wisconsin Avenue. Verify which of the two laterals is currently active and reconnect it. Cut and cap the non-active lateral to this property a minimum of 3 feet away from the sanitary sewer main. The cost of verification and capping the non-active lateral shall be considered incidental to the cost of reconnecting the 4-inch lateral to this property.

D Measurement
The department will measure Reconnect Sanitary Lateral 4-Inch as a unit for each individual lateral reconnection, 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.0060.5010	Reconnect Sanitary Lateral 4-inch	Each

Payment is full compensation for furnishing and installing all materials including joints and wye connections; for excavating, backfilling, and compacting; and for disposing of surplus materials.

168. Adjusting Sanitary Manhole, Item SPV. 0060.5011.

A Description

This work includes adjusting sanitary manholes to an elevation as determined by the engineer as well as installing frame and cover, internal frame/chimney seal, in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition.

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 tops 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 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. Reconstruct manholes as necessary so that the frames and cover when placed will be at the established required grade; remove the existing frame and cover. Install seals in accordance to the manufacturer's recommended installation procedures. Furnish and use Backfill Slurry in the manhole excavation area to existing surface or to appropriate depth for pavement restoration. Salvage the existing frame and cover.

C.2 Surface Preparation
Remove manhole cover and power wire brush the lower 3 inches of the manhole frame to remove any loose rust or scale and repair any imperfections by either grinding smooth or filling with mortar. A smooth, clean sealing surface is required. Realign the casting if it is offset more than approximately 2 inches from the chimney. Remove all loose and protruding mortar and brick from the upper 7-Inch chimney and clean surface by power wire brushing. Provide a 4-Inch wide sealing surface starting 2 inches down from the bottom of the frame.

All sealing surfaces must be circular, reasonably smooth, clean and free of any loose material or excessive voids. If such a surface does not exist for the bottom of the sleeve to seal against, use one-component, quick-set, high strength, non-shrink, polymer modified patching mortar which has been formulated for vertical or overhead use. If the bottom of the sleeve is to seal against the top of an eccentric (straight side) cone and an inadequately high vertical surface does not exist, contact the manufacturer to obtain details to build the required vertical surface.

Use caulk to fill minor irregularities in the bottom sealing surface. The caulk shall be a butyl rubber caulk conforming to AASHTO M-198, Type B. Apply a single bead of the caulk to the center portion of the lower sealing surface of the sleeve.

Any flaws in the manhole frame, such as minor cracks, pits or protrusions, shall be repaired by either filling with mortar or grinding smooth.

D Measurement
The department will measure Adjusting Sanitary Manhole as a unit per each individual 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.0060.5011	Adjusting Sanitary Manhole	Each

Payment is full compensation for furnishing and installing all materials including adjusting rings, masonry, and internal frame/chimney seals; for excavating, backfilling, and compacting; for disposing of surplus materials; and for cleaning out and restoring the structure.

169. Abandon Sanitary Manhole, Item SPV. 0060.5012.

A Description
This work includes abandoning existing sanitary structures in place, in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition.

B Materials

B.1 General

Furnish Backfill Slurry in accordance to the pertinent requirements of standard spec 209 except as hereinafter modified.

Use aggregates that conform to section 501 of the standard specifications 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.

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. Salvage the existing frame and cover. Contact Joe Marks of City of Wauwatosa at (414) 479-8931 to arrange for pickup of frame and cover.

D Measurement

The department will measure Abandon 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.0060.5012	Abandon 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.

170. Aster Professor Kippenburg Cont 6-Inch, Item SPV.0060.7001; Daylilly Stella D'Oro Cont 6-Inch, Item SPV.0060.7002; Coneflower Purple Cont 2.5-Inch, Item SPV.0060.7003; Grass Prairie Dropseed Cont 6-Inch, Item SPV.0060.7004; Grass Little Bluestem Cont 6-Inch, Item SPV.0060.7005; Grass AdagioDwarf Maiden Cont 6-Inch, Item SPV.0060.7006; Grass Karl Foerster Reed Cont 6-Inch, Item SPV.0060.7007; Phlox Creeping Cont 6-Inch, Item SPV 0060.7008; Susan Black-Eyed Cont 2.5-Inch, Item SPV.0060.7009; Yarrow Paprika Cont 6-Inch, Item SPV.0060.7010.

A Description
This special provision describes furnishing and planting perennial plants of the species, varieties and sizes specified, in accordance to standard spec 632, and as hereinafter provided.

B Materials
Provide plants of the specific species, variety, size, color and other characteristics as shown on the plans and Planting Data chart unless prior written approval of the engineer is provided in advance for any substitution.

C Construction
Plant perennials in prepared beds that are a minimum of 6" deep and backfilled with Planting Mixture (632.2.3.4). Incorporate timed-release fertilizer thoroughly into the top 3" inches of planting soil at the manufacturers recommended rate. Use a fertilizer conforming to the following minimum requirements:

Nitrogen……..……14%
Phosphoric Acid……..……14%
Potash…….14%

Thoroughly water-in plants to eliminate all air pockets in the planting pit.

Plant all perennials between May 1st and September 1st unless directed otherwise by the engineer.

Contractor shall remove and dispose of all excess material from site.

D Measurement
The department will measure Perennials by each individual planted perennial 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.0060.7001	Aster Professor Kippenburg Cont 6-Inch	Each
SPV.0060.7002	Daylily Stella D'Oro Cont 6-Inch	Each
SPV.0060.7003	Coneflower Purple Cont 2.5-Inch	Each
SPV.0060.7004	Grass Prairie Dropseed Cont 6-Inch	Each
SPV.0060.7005	Grass Little Bluestem Cont 6-Inch	Each
SPV.0060.7006	Grass Adagio Dwarf Maiden Cont 6-Inch	Each
SPV.0060.7007	Grass Karl Foerster Reed Cont 6-Inch	Each
SPV.0060.7008	Phlox Creeping Cont 6-Inch	Each
SPV.0060.7009	Susan Black-Eyed Cont 2.5-Inch	Each
SPV.0060.7010	Yarrow Paprika Cont 6-Inch	Each

Payment is in accordance to standard spec 632.5.

171. Crossroad Name Signs Special Sign Supports, Item SPV.0060.7011; Sign Structure Wayfinding, Item SPV.0060.7012.

A Description

This work consists of fabricating, galvanizing, delivering and installing Sign Structures as shown on the plans and installation of aluminum signs on structure.

B Materials

B.1 General

All structural steel and welding materials shall meet the requirements as shown on the plans and the applicable provisions in Section 506 of the standard specifications.

Prior to fabrication, steel shall be blast cleaned per SSPC-SP 6 and galvanized according to ASTM A 123. All bolts, nuts and washers shall be supplied as factory galvanized according to ASTM A 153. Repair zinc coating damaged during fabrication as specified in standard spec 635.3.5. Grind the welded joints to a smooth finish where shown in the plans.

Steel preparation includes the chamfering of sharp edges. All sharp edges shall be flattened by a single pass of a grinder or suitable device along the sharp edge. Condition any thermal cut edges before blast cleaning by shallow grinding or other cleaning to remove any hardened surface layer. Remove all evident steel defects exposed in accordance to AASHTO M 160 prior to blast cleaning.

C Construction

Provide shop drawings in accordance to the requirements of standard spec 506.3.2. Shop drawings shall contain material sizes and types, weld sizes and locations, and all necessary details, dimensions, and information to allow fabrication of the sign structure in conformance with the requirements of the contract. Do not begin fabrication prior to shop drawing review and acceptance.

Contractor shall provide a test segment of two different sized tubular components welded together and with the proper finish for the sign structures. The test segment shall consist of two pieces 2 feet long, welded and finished. The test segment shall be delivered to the job site within 60 days of the award of the contract. Contractor shall deliver the test segment to a location within the project area as designated by the engineer. Do not begin fabrication of sign structures prior to the test segment acceptance.

During construction and at the time of delivery the engineer shall inspect the sign structures for any shipping damage or construction defects. The engineer shall accept the product after the delivery is unloaded on the site. After the product is unloaded, the installation contractor will signify in writing that the sign structures were received in acceptable condition per the engineer’s inspection. Any damage to the sign structures after the acceptable delivery will be the responsibility of the installation contractor.

All welding shall conform to the applicable requirements of standard spec 506. No field welding, field cutting, or drilling will be permitted without the approval of the engineer.

Provide the engineer with the name, address, and phone number of a representative of sign structure fabricator for future coordination.

During handling, protect finish coating from damage. If damaged during handling the sign structures may be rejected by the engineer or engineer may direct fabricator that the finish shall be repaired in accordance to the manufacturer's recommendations.

Contractor shall remove and dispose of all excess material from site.

D Measurement

The department will measure Crossroad Name Signs Special Sign Supports and Sign Structure Wayfinding 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.0060.7011	Crossroad Name Signs Special Sign Supports	Each
SPV.0060.7012	Sign Structure Wayfinding	Each

Payment is full compensation for fabricating, galvanizing and delivering sign structures, providing structure test segment and delivering to site; fabricating, furnishing, delivering and unloading sign structures, installing sign structures, aluminum signs and hardware; and for preparing shop drawings, and galvanizing metal sign structures.

172. Concrete Foundation Advance Crossroad Name Signs Special Sign Support, Item SPV.0060.7013; Concrete Foundation Wayfinding, Item SPV.0060.7014.

A Description

This special provision describes constructing concrete foundations at the locations as shown on the plans or as directed by the engineer.

B Materials

Furnish bar steel reinforcement conforming to standard spec 505.2.

Furnish grade A, A-FA, A-S, A-T, A-IS, or A-IP concrete conforming to standard spec 501.2.

C Construction
Construct concrete foundations, including necessary hardware and anchor bolts as shown in the plan details. In the event there are conflicts with existing utilities it may be necessary to shift foundation locations. If foundations are shifted to avoid utilities, contractor shall receive written approval from the engineer for the new location.

Construct concrete foundations as specified in standard spec 501, and provide the surface finish specified in standard spec 502.3.7.2 and plan details. Finish the concrete foundations to support sign structures or banner posts with structures and posts bearing evenly on the foundation. Inspect the forming and applicable reinforcement for concrete foundations before pouring the concrete. Cure the foundations for 5 days before installing any structures.

Contractor shall remove and dispose of all excess material from site.

D Measurement
The department will measure Concrete Foundation Crossroad Name Signs Special Sign and Concrete Foundation Wayfinding as each individual foundation, 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.0060.7013	Concrete Foundation Crossroad Name Signs Special Sign	Each
SPV.0060.7014	Concrete Foundation Wayfinding	Each

Payment is full compensation for providing and installing all materials including necessary hardware, anchor bolts, forms, bar steel reinforcement, and concrete; and for excavating, backfilling, and disposing of surplus materials.

173. Hotel Pond Outlet Storm Sewer Structure, Item SPV.0060.8002; Mayfair Pond Outlet Storm Sewer Structure, Item SPV.0060.8003.

A Description
Furnish and install pond outlet Storm Sewer Structures. Furnish and install outlet Storm Sewer Structures in accordance to the pertinent provisions of section 611 of the standard specifications, as shown on the plans and as hereinafter provided. Furnish and install trash racks on the outlet Storm Sewer Structures. Furnish and install trash racks in accordance to the pertinent provisions of standard spec 506 and 513, as shown on the plans and as hereinafter provided

B Materials
Furnish manhole materials in accordance to standard spec 611.

Furnish steel conforming to the requirements of standard spec 506.2.2.1. Furnish steel galvanized in accordance to ASTM A123 and ASTM 1153 as applicable.

Trash racks shall be fabricated from structural steel shapes, flat bar and plates and shall be galvanized after fabrication. Shop drawings for the trash racks shall be submitted to the engineer for approval prior to fabricating the trash racks.

Furnish bolts, nuts and washers for the installation of the trash racks onto the Outlet Storm Sewer Structures. Bolts, nuts and washers in accordance to standard spec 513.2.2.5.

C (Vacant)

D Measurement
The department will measure (Pond) Outlet Storm Sewer Structure as each individual unit, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.8002	Hotel Pond Outlet Storm Sewer Structure	Each
SPV.0060.8003	Mayfair Pond Outlet Storm Sewer Structure	Each

Payment is full compensation for providing and placing all materials, including all masonry, steel and pipe connections, and other fittings; furnishing and installing trash racks; for furnishing all excavating, backfilling, disposing of surplus material, and for cleaning out and restoring the work site.

174. Inlet Covers Type 57, Item SPV.0060.8004; Inlet Covers Type R Special, Item SPV.0060.8006.

A Description
The work under these items shall be in accordance to the requirements of standard spec 611 and the details as shown on the plans.

B (Vacant)

C (Vacant)

D Measurement
The department will measure Inlet Cover (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 items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.8004	Inlet Covers Type 57	Each
SPV.0060.8006	Inlet Covers Type R Special	Each

Payment shall conform to standard spec 611.5.

175. 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 private laterals in existing structures prior to that structure's removal. Remove existing lateral pipes to the next good joint and replace in-kind. Verify that positive drainage is achieved when connecting to the new inlet or curb outlet structure. The contractor will be allowed to salvage any structurally sound pipe that was removed with prior approval by the engineer. Connect the existing pipes to the new pipes with the appropriate coupling, concrete collar or by means approved by the engineer. Concrete masonry for concrete collar shall be in accordance to standard spec 501. Any additional pipe or materials required to reconnect the storm sewer laterals shall be considered incidental to this bid item.

D Measurement
The department will measure Reconnect Storm Sewer Laterals by each individual lateral 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.0060.8007	Reconnect Storm Sewer Laterals	Each

Payment is full compensation for performing all work; and for furnishing and installing all materials, couplings, concrete collars, and pipe.

176. Manholes 9-FT Special, Item SPV.0060.8012; Manholes 10-FT Special, Item SPV.0060.8013; Storm Sewer Structure S423, Item SPV.0060.8030; Storm Sewer Structure S429, Item SPV.0060.8031; Storm Sewer Structure S447, Item SPV.0060.8032; Storm Sewer Structure S450, Item SPV.0060.8033; Storm Sewer Structure S454, Item SPV.0060.8034; Storm Sewer Structure S466, Item SPV.0060.8035; Storm Sewer Structure S467, Item SPV.0060.8036;Storm Sewer Structure S471, Item SPV.0060.8037; Storm Sewer Structure S478, Item SPV.0060.8039; Storm Sewer Structure S487, Item SPV.0060.8040; Storm Sewer Structure S489, Item SPV.0060.8041; Storm Sewer Structure S739, Item SPV.0060.8044; Storm Sewer Structure S746, Item SPV.0060.8045; Storm Sewer Structure S747, Item SPV.0060.8046; Storm Sewer Structure S748, Item SPV.0060.8047; Storm Sewer Structure S749, Item SPV.0060.8048; Storm Sewer Structure S750, Item SPV.0060.8049; Storm Sewer Structure S820, Item SPV.0060.8051.

A Description

The work shall be in accordance to the details as shown on the plan and requirements of standard spec 611 for constructing Storm Sewer Structures with necessary reinforcement, metal frames, grates and lids, including required excavating and backfilling.

B Materials

Conform to standard spec 611.2.

Precast Concrete Structures: Contractor has the option of installing precast concrete structures. Provide a structure design for each location. Have a professional engineer registered in the State of Wisconsin and knowledgeable of the specific site conditions and requirements, verify the adequacy of design. Submit one copy of design for each location signed and sealed by the same professional engineer verifying the design, to the engineer for incorporation into the permanent project record.

C Construction

Conform to standard spec 611.3.

D Measurement

The department will measure Manholes (Size) Special and 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.0060.8012	Manholes 9-FT Special	Each
SPV.0060.8013	Manholes 10-FT Special	Each
SPV.0060.8030	Storm Sewer Structure S423	Each
SPV.0060.8031	Storm Sewer Structure S429	Each
SPV.0060.8032	Storm Sewer Structure S447	Each
SPV.0060.8033	Storm Sewer Structure S450	Each
SPV.0060.8034	Storm Sewer Structure S454	Each
SPV.0060.8035	Storm Sewer Structure S466	Each
SPV.0060.8036	Storm Sewer Structure S467	Each
SPV.0060.8037	Storm Sewer Structure S471	Each
SPV.0060.8039	Storm Sewer Structure S478	Each
SPV.0060.8040	Storm Sewer Structure S487	Each
SPV.0060.8041	Storm Sewer Structure S489	Each
SPV.0060.8044	Storm Sewer Structure S739	Each
SPV.0060.8045	Storm Sewer Structure S746	Each
SPV.0060.8046	Storm Sewer Structure S747	Each
SPV.0060.8047	Storm Sewer Structure S748	Each
SPV.0060.8048	Storm Sewer Structure S749	Each
SPV.0060.8049	Storm Sewer Structure S750	Each
SPV.0060.8051	Storm Sewer Structure S820	Each

Payment is full compensation for providing and installing all materials, including all masonry, conduit and sewer connections, steps and other fittings; for furnishing all excavating and backfill slurry; 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 1 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 in accordance to standard spec 109.4.

177. 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 611.2.

C Construction
Conform to standard spec 607.3 and 611.3.

D Measurement
The department will measure Pipe Connection to Existing Structure by each individual lateral 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 for installing all materials, couplings, concrete collars, and pipe.

178. Sedimentation Basin, Item SPV.0060.8017.

A Description
Design, supply and maintain a sedimentation basin used to de-water the storm sewer or culvert pipes or stormwater ponds.

B (Vacant)

C Construction
Design a sedimentation basin that is able to filter the contaminated water prior to discharging it back into the adjacent drainage way conforming to Wisconsin DNR technical standard guidelines for sedimentation basin design. Submit sedimentation basin design to the engineer for approval prior to its construction. Maintain the sedimentation basin at regular intervals or as directed by the engineer.

D Measurement
The department will measure Sedimentation Basin as each individual sedimentation basin, 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.0060.8017	Sedimentation Basin	Each

Payment is full compensation for design and approval; furnishing and maintaining each basin; for any polymers required to achieve performance standards; and for removal of the basin.

179. Check Valve 72-Inch, Item SPV.0060.8024.

A Description

This special provision describes providing and installing a rubber check valve inside a proposed storm sewer pipe at location as shown on the plan.

B Materials

All valves shall be of the slip-in CheckMate™ as manufactured by Tideflex Technologies®, A Division of Red Valve Company, Carnegie, PA 15106.

Check valves shall be all rubber and the flow operated check type with slip-in cuff or flange connection. The entire check valve shall be ply reinforced throughout the body, disc and bill, which is cured and vulcanized into a one-piece unibody construction. A separate valve body or pipe used as the housing is not acceptable. The valve shall be manufactured with no metal, mechanical hinges or fasteners, which would be used to secure the disc or bill to the valve housing. The port area of the disc shall contour down, which shall allow passage of flow in one direction while preventing reverse flow. The entire valve shall fit within the pipe I.D. Once installed, the check valve shall not protrude beyond the face of the Storm Sewer Structure or end of the pipe.

The downstream end of the valve must be circumferentially in contact with the pipe while in the closed positions.

Furnish slip-in style check valve with a set of stainless steel expansion clamps. The clamps, which will secure the valve in place, shall be installed inside the cuff portion of the valve, based on installation orientation, and shall expand outwards by means of a turnbuckle. Each clamp shall be pre-drilled allowing for the valve to be pinned and secured into position in accordance to the manufacturer's installation instructions. Flange style check valves will be furnished with a stainless steel, ANSI 125/150 drilled, retaining ring unless specified otherwise.

C Construction

Install valve in accordance to manufacturer's written Installation and Operation Manual.

Manufacturer's customer service and/or authorized representative shall be available during installation and start-up, and to train personnel in the operation, maintenance and troubleshooting of the valve.

D Measurement

The department will measure Check Valve (size) by each individual valve, 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.0060.8024	Check Valve 72-Inch	Each

Payment is full compensation for furnishing all materials, installation, manufacturer's customer service and/or authorized representative present at the construction site during installation and start-up, and to train personnel in the operation, maintenance and troubleshooting of the valve.

180. Storm Sewer Structure S491, Item SPV.0060.8042.

A Description

This special provision describes constructing storm sewer Storm Sewer Structure S491 made of concrete with necessary reinforcement, metal frames, furnishing and installing the flap gate and appurtenances, water tight joints, and steel manhole steps, installing flap gates and all required excavation, aggregate slurry backfill, backfill slurry, shaft base bedding material, compaction, control, handling and disposal of water, including required excavating and backfilling in accordance to construction details shown on the plans.

A manufacturer's representative for the equipment specified herein is required to be present at the jobsite for a minimum of two man-days, travel time excluded, for installation assistance, inspection, and certification of the installation.

B Materials

B.1 General

Furnish grade A, A-FA, A-S, A-T, A-IS, or A-IP air-entrained concrete conforming to section 501 as modified in section 716. Furnish steel reinforcement conforming to standard spec 505.

Furnish support assemblies conforming to standard spec 611.2.2.

Use castings conforming to AASHTO M 105, class 30. Furnish slurry backfill conforming to article, Backfill Slurry.

Conform to bedding material as per section 8.43.2 of the Standard Specification for Sewer and Water Construction in Wisconsin.

Fill space between pipe and manhole wall with mortar in place.

Provide welded stainless steel flap gate, minimum metal thickness of 3/8", type 316L panel with stiffeners, maximum deflection is not to exceed 1/360 of span. Conform frame to 316 stainless steel of 3/8" minimum thickness, with ASTM D-2000 neoprene seats.

The flap gate shall also include 316L stainless steel double adjustable hinges, silicon bronze ASTM B98-655 hinge posts, hinge pins, and hex jam nuts all as manufactured by Rodney Hunt Company, Orange, Massachusetts; Whipps, Inc., Athol, Massachusetts; Fontaine, Magog, Ontario, Canada; or equal.

Provide watertight flap gate with ample strength to withstand a pressure of 25-foot head of water and function properly with a differential head of approximately 0.5 feet across the gate.

The hinge linkage shall be compound linkage type with upper and lower adjustments to make sure the leaf will lay flat on the seat with even pressure all around. The upper hinge arm connection shall be an integral part of the flap gate frame to ensure that the geometric relations between the leaf and frame are retained after installation. The upper linkage shall consist of a 316L stainless steel hinge post on the frame, a 316L stainless steel hinge block split and clamped on to the post, and pinned to the hinge arm with a silicon bronze pin. The hinge block shall be adjustable to and away from the frame. The hinge shall be retained in the arm by 3/8" silicon bronze cup point set screw and lubricated by a non-corrosive grease fitting mounted on the block.

The lower arm connection shall be designed so that debris cannot accumulate under the arm or adjusting bolt. The adjusting bolt shall be threaded through the end of the hinge arm and bear against a wear plate on the face of the leaf. The adjusting bolt shall be silicon bronze and provided with a bronze lock nut to maintain adjustment. The lower hinge pin shall be locked in the clevises with 3/8" silicon bronze cup point set screws and be provided with a non-corrosive grease fitting, mounted in the arm directly above the pin. The pin itself shall be silicon bronze.

B.2 Anchors Bolts

Provide adhesive anchors equal to Ramset/Red Head Epcon System or Hilti HIT System. Provide anchor bolts of no per manufacturer recommendations.

Provide all anchor bolts with ample cross section to withstand the force created by operation of the gate.

Two nuts shall be provided for each anchor bolt. Anchor bolts for floor stands, stem guides, gate guides, etc., shall be Type 316 stainless steel, furnished by the gate manufacturer.

C Construction

C.1 General

Excavate and backfill as specified for excavation for storm sewer structures in standard spec 206, except do not backfill concrete brick until at least 3 days after completing the unit. Backfill in accordance to article, Backfill Slurry.

Construct concrete as specified in standard spec 501, and as specified for culverts and retaining walls in standard spec 504.

Construct structural steel and miscellaneous metals as specified for steel bridges in standard spec 506.

Cure the concrete by one of the methods specified in standard spec 502.3.8 for curing concrete in substorm sewer structure units.

The inlet and discharge elevations as indicated on the plans are subject to all revisions necessary to fit field conditions. The engineer may increase or decrease the depth of storm sewer structure in order to adjust their inlet or discharge elevations.

Make inlet and outlet sewer pipe, sewers and conduit for connections with storm sewer structures the same size, type and class as the sewer pipe, sewers and conduit to which connections are made, and so that they conform to the same pertinent requirements.

For pipe placed in masonry for inlet or outlet connections, make it flush on the inside of the storm sewer structure wall and extend the pipe through the walls and beyond the outside surfaces of the walls a sufficient distance to allow for connections with conduits or sewers. Carefully construct the masonry around them to prevent leakage around their outer surfaces.

Frames, grates, and lids shall conform to standard spec 611.3.3. Install steps as shown on the plan.

Covers for storm sewer structure shall conform to standard spec 611.3.6.

Placing and protecting concrete in cold weather shall be according to the requirements of ACI 306. Concrete shall not be placed against frozen earth or ice, or against forms with frost or ice present. Do not place concrete when the ambient temperate is below 40 degrees Fahrenheit, or approaching 40 degrees Fahrenheit, without special protection as permitted by the engineer. Remove and replace concrete damaged by freezing at no additional cost to the department.

C.2 Flap Gate Installation

Handle and install flap gate and appurtenances in accordance to the manufacturer's recommendations.

Align the flap gate accurately and adjust so that it will open easily under the conditions specified hereinbefore and so that the rubber seals will have bearing to ensure a watertight seal. The gate is to be mounted on 316 stainless steel drill in epoxy anchor bolts.

Provide adjustable hinge pins supporting the flaps and set so that the flap will operate and seat properly.

C.3 Flap Gate Testing
Test flap gate after installation, under seating and unseating conditions. Correct any backflow leakage over 0.2 gallons per minute per foot of gate seating periphery when subject to a 5-foot seating head prior to final acceptance by the engineer. Flap gate shall operate without vibrating or binding and shall open when there is differential head across the flap gate of 0.3 foot or less.

Provide an affidavit from the flap gate manufacturer stating the materials options furnished and that these and other referenced specifications have been complied with.

C.4 Hydrostatic Testing
When, in the engineer's opinion, the groundwater table is too low to permit visual detection of leaks, hydrostatically test the storm sewer structure. The test shall consist of plugging all inlets and outlets and filling the storm sewer structure with water to a height determined by the engineer. Leakage in the storm sewer structure shall not exceed 0.2 gallon per hour per foot of head above the invert (for a period of 4 hours). The storm sewer structure may be filled 24 hours prior to time of testing, if desired, to permit normal absorption into the pipe walls to take place. Repair storm sewer structures that do not meet the leakage test, or are unsatisfactory from visual inspection, to conform to the requirements herein.

Make all arrangements for furnishing water from the nearest hydrant or other suitable source for testing purposes. Provide all hoses, tank trucks, plugs, and other necessary equipment to complete the tests.

Clean out all soil, debris, or other accumulated matter from all, storm sewer structures constructed under this contract before the engineer will accept the work. Remove all materials in all of these storm sewer structures deposited or lodged due to the contractors operations.

D Measurement
The department will measure Storm Sewer Structure S491 as each individual storm sewer structure 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.0060.8042	Storm Sewer Structure S491	Each

Payment for Storm Sewer Structure S491 is full compensation for providing and installing all materials, including flap gate, Storm Sewer Structure and appurtenances, all masonry, conduit and sewer connections, steps and other fittings; for Storm Sewer Structure base material compaction and slab work; for temporary support and protection of existing utilities; for furnishing all excavating; for sheeting and shoring; for sealing joints and making connections to new Storm Sewer Structures; for control of water; for

backfill slurry; for granular backfill bedding material, compaction and compaction testing; for removing sheeting and shoring; disposing of surplus material, and for cleaning out and restoring the work site; and for hydrostatic testing. The department will pay for covers, including frames, grates and lids separately.

181. Remove and Cap Existing Drainage Structure, Item SPV.0060.8061.

A Description

This item describes remove and cap existing drainage storm sewer structure with concrete and necessary reinforcement, including required excavating and backfilling in accordance to construction details shown on plan, the standard specifications, and as hereinafter provided.

B Materials

Furnish materials conforming to standard spec 501 for concrete, standard spec 505 for reinforcement, and standard spec 506 for structural steel and miscellaneous metals.

Furnish grade A concrete with Type II cement conforming to standard spec 501.2. Furnish ASTM 617 Grade 60 reinforcing steel.

Furnish plastic waterstop conforming to standard spec 502.3.6.4.

Furnish support assemblies conforming to standard spec 611.2.2.

C Construction

Excavate and backfill as specified for excavation for storm sewer structures in standard spec 206, except do not backfill concrete brick until at least 3 days after completing the unit. Use granular backfill material for backfilling unless the engineer directs otherwise.

Construct concrete as specified in standard spec 501, and as specified for culverts and retaining walls in standard spec 504.

Construct concrete brick as specified in section 519.

Construct structural steel and miscellaneous metals as specified for steel bridges in standard spec 506.

Cure the concrete by one of the methods specified in standard spec 502.3.8 for curing concrete in substorm sewer structure units.

Construct the masonry and install waterstop material to provide a watertight joint between new masonry cap and existing manhole.

Clean and remove all materials and debris deposited or lodged in the manhole due to the contractor’s operations during construction.

D Measurement
The department will measure Remove and Cap Existing Drainage Structure as each individual unit of work, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.8061	Remove and Cap Existing Drainage Structure	Each

Payment for the Remove and Cap Existing Drainage Storm Sewer Structure is full compensation for providing all materials, including all masonry; for furnishing all excavating; for sheeting and shoring; for backfilling; for providing granular backfill material; for control of water; for temporary support and protection of existing utilities to construction; for removing sheeting and shoring; disposing of surplus material, and for cleaning out and restoring the work site. Granular backfill material required for backfilling is incidental to the work.

182. Removing Retaining Wall, Item SPV.0090.0001.

A Description
This special provision describes removing retaining wall in accordance to the pertinent provisions of standard spec 204 and as hereinafter provided.

At least five working days prior to the start of removing retaining wall, contact property owner to arrange the pickup of salvaged materials. Safely disconnect power and remove lighting, electrical, and irrigation appurtenances. Remove all items part of the existing brick, concrete, masonry, stone and steel wall above existing surface elevation. Salvage lighting, brick, stone, conduit, wiring, nuts, bolts and all materials requested by the property owner. Remove all materials below existing ground to an elevation of 5 feet below proposed surface elevation, or as specified by the engineer. Dispose of all removed material at an offsite location. This includes but is not limited to piling, concrete foundation, conduit, wiring, and fasteners.

B (Vacant)

C Construction
Avoid damaging salvaged materials and any utilities during construction operations. Do not use equipment or devices that might damage facilities. Complete all necessary operations to remove the retaining wall. Place salvaged materials in neat piles outside the construction limits but within right-of-way at locations approved by the engineer. Backfill all trenches, holes, and pits not occupied by the new pavement and base course with suitable fill material conforming to standard spec 209.

Arrange with the property owner to pick up salvaged materials within five business days. If salvaged materials are not picked up by the property owner, contractor shall be responsible for moving or storing the materials, if necessary, until the property owner

picks up the materials. Moving and storing the materials shall be at the contractor's expense.

Schedule a pre-demolition meeting with the engineer at least 14 calendar days prior to the start of demolition. At the meeting, contractor shall explain in detail his schedule and methodology for performing the necessary demolition work, including any special traffic control requirements.

D Measurement
The department will measure Removing Retaining 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.0090.0001	Removing Retaining Wall	LF

Payment is full compensation for breaking down and removing existing retaining walls; for contacting the property owner; for disconnecting power, lighting, and irrigation systems; for furnishing all excavating; for disposing brick, concrete, masonry, stone, steel and all other materials not required for salvaging that were encountered during retaining wall removal in this specification; for furnishing all required salvaging; for moving and storing salvaged materials; and for placing and compacting backfill material.

183. Pipe Underdrain Exploration, Item SPV.0090.0002; Storm Sewer Lateral Exploration, Item SPV.0090.0003.

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). Keep the trench open until the engineer orders it backfilled. 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.0090.0002	Pipe Underdrain Exploration	LF
SPV.0090.0003	Storm Sewer Lateral Exploration	LF

Payment is full compensation for furnishing all excavating, for placing and compacting backfill material, and for restoring the work site.

184. Pavement Marking Grooved Preformed Thermoplastic Yield Line 18-Inch, Item SPV.0090.0009; Pavement Marking Grooved Preformed Thermoplastic Stop Line 18-Inch, Item SPV.0090.0010; Crosswalk 6-Inch, Item SPV.0090.0011.

A Description

This special provision describes grooving the pavement surface, and furnishing and installing preformed thermoplastic pavement marking as shown on the plans, in accordance to standard spec 647, and as hereinafter provided.

B Materials

Furnish preformed thermoplastic pavement marking and sealant material, if required, from the department's approved products list.

C Construction

C.1 General

For quality assurance, provide the engineer and the region's Marking Section evidence of manufacturer training in the proper placement and installation of preformed thermoplastic pavement marking.

Plane the grooved lines in accordance to the plan details. Use grooving equipment with a free-floating, independent cutting or grinding head. Plane a minimum number of passes to create a smooth groove.

C.2 Groove Depth

Cut the groove to a depth of 120 mils ±10 mils deeper than the thermoplastic thickness, from the pavement surface or, if tined, from the high point of the tined surface. Measure depth using a straightedge placed perpendicular to the groove. The department may periodically check groove depths.

C.3 Groove Width – Linear Markings

Cut the groove 1-inch wider than the width of the thermoplastic.

C.4 Groove Position

Position the groove edge in accordance to the plan details.

C.4.1 Linear Marking
Groove at a minimum of 4-inches, but not greater than, 12-inches from both ends of the line segment. Achieve straight alignment with the grooving equipment.

C.4.2 Special Marking
Groove a box around the special marking up to 4 inches from the perimeter of the special marking.

C.5 Groove Cleaning
C.5.1 Concrete
Cooling the cutting head with water may be necessary for some applications and equipment. If cooling water is necessary, flush the groove immediately with water after cutting to remove any build-up of cement dust and water slurry. If this is not done, the slurry may harden in the groove.

If water is used in the grooving process, allow the groove to dry a minimum of 24 hours after groove cleaning, after removal of excess water, and prior to pavement marking application. Clean and dry the groove for proper application of the sealant, and placement of the pavement marking. Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove; use of the air blower does not decrease the amount of time required for the groove to dry.

C.5.2 New Asphalt
Groove pavement 10 or more days after paving. Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove.

C.5.3 Existing Asphalt
Check for structural integrity in supporting grooving operations. If the structural integrity of the asphalt pavement is inadequate to support grooving operations, immediately notify the engineer.

C.5.4 Asphalt
Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove.

C.6 Preformed Thermoplastic Application
Preheat the surface if necessary based on manufacturer's recommendation.

Application of the preformed thermoplastic in the groove without sealant will be as follows:

- May 1 to September 30, both dates inclusive – the Southeast Region and the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.
- June 1 to August 31 – the Southwest Region, and the Northeast, North Central, and Northwest Regions except for the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.

Application of the preformed thermoplastic in the groove with sealant materials will be as follows:

- October 1 to April 30, both dates inclusive – the Southeast Region and the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.
- September 1 to May 31, both dates inclusive – the Southwest Region and the Northeast, North Central, and Northwest Regions, except for the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.

The sealant must be wet.

D Measurement

The department will measure Pavement Marking Grooved Preformed Thermoplastic (Type) by the linear foot of tape, 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.0090.0009	Pavement Marking Grooved Preformed Thermoplastic Yield Line 18-Inch	LF
SPV.0090.0010	Pavement Marking Grooved Preformed Thermoplastic Stop Line 18-Inch	LF
SPV.0090.0011	Pavement Marking Grooved Preformed Thermoplastic Crosswalk 6-Inch	LF

Payment is full compensation for cleaning and preparing the pavement surface, furnishing and installing the material.

185. Low Profile Concrete Barrier, Item SPV.0090.0012; Low Profile Concrete Barrier End Section, Item SPV.0090.0013.

A Description

Construct Low Profile Concrete Barrier and Low Profile Concrete Barrier End Section in accordance to standard spec 603, details shown in the plans and as hereinafter provided.

B Materials

Add the following to standard spec 603.2:

Concrete minimum strength to be 4000 psi.

Delete paragraph (4) in standard spec 603.2.

C Construction

C.1 General

Delete paragraph (1) in standard spec 603.3.1.1.

Add the following to standard spec 603.3.1.1:

Construct the Low Profile Concrete Barrier and Low Profile Concrete Barrier End Section to present a smooth, uniform appearance in its final position conforming to the horizontal and vertical lines shown on the plans or ordered by the engineer, and be free of lumps, sags or other irregularities. The top and exposed faces of the barrier shall conform to standard spec 603.3.1.5.

If constructed by using a slip form machine or similar type equipment, feed concrete into the slip form machine at a uniform rate. Operate the machine under sufficient uniform restraint to forward motion to produce a well compacted mass of concrete free from surface pits larger than one inch in diameter and requiring no further finishing, other than that conforming to standard spec 603.3.1.6.

If constructed by using a slip form machine or similar type equipment, the concrete barrier shall be of well-compacted, dense concrete, and the exposed surfaces conform to standard spec 603.3.1.7. If requested by the engineer, evidence of successful operation of the slip form machine or other equipment may be required.

Utilize concrete of such consistency that, after slip forming, it will maintain the shape of the barrier without support.

C.2 Anchor Dowels

Replace standard spec 603.3.1.2 with the following:

Install anchor dowels at the locations, spacing, and depth shown in the plans. Drilled holes are not allowed.

C.3 Joints

Add the following to standard spec 603.3.1.3

Construct contraction joints at the locations, spacing, and depth shown in the plans.

C.4 Temporary Precast Barrier

Delete standard spec 603.3.2.

D Measurement
Replace standard spec 603.4 with the following:

The department will measure Low Profile Concrete Barrier and Low Profile Concrete Barrier End Section by the linear foot, acceptably completed, measured along the base of the concrete barrier.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0012	Low Profile Concrete Barrier	LF
SPV.0090.0013	Low Profile Concrete Barrier End Section	LF

Payment for Low Profile Concrete Barrier and Low Profile Concrete Barrier End Section is full compensation for excavating and preparing the foundation; for providing all materials shown in the plans, including concrete, expansion joints, reinforcement, concrete, and extruded polystyrene; for furnishing all joints as shown in the plans; for disposing of excess material; and for placing, finishing, protecting, and curing concrete.

186. Vertical Face Parapet Special, Item SPV.0090.0014.

A Description
Construct Vertical Face Parapet Special in accordance to standard spec 504, 505, and 516, details shown in the plans and as hereinafter provided.

B Materials
Use materials in accordance to standard spec 504, 505, and 516. Vertical Face Parapet Special shall match 42-inch vertical faced parapet on adjacent Structures R-40-475 and R-40-476.

C Construction
Construct Vertical Face Parapet Special in accordance to standard spec 504, 505, and 516.

D Measurement
The department will measure Vertical Face Parapet Special by the linear foot, acceptably completed, measured along the base of the concrete parapet.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0014	Vertical Face Parapet Special	LF

Payment for Vertical Face Parapet Special is full compensation for excavating and preparing the foundation; for providing all materials shown in the plans including concrete, expansion joints, reinforcement, dowel bars, sealants, fillers, forms, and falsework; for furnishing all joints as shown in the plans; for heating materials; for applying prime coats; for placing membrane; for disposing of excess material; for placing all reinforcement as shown in the plans; and for placing, finishing, protecting, and curing concrete.

187. Wall Railing, Item SPV.0090.0210.

A Description

This special provision describes furnishing and installing steel pipe handrails in accordance to standard spec 513, as shown in the plans, and as hereinafter provided.

B Materials

B.1 Paint for Wall Railing

Use one of the qualified paint sources and products given below with tie primer coat specifically intended for painting of galvanized surfaces. An equivalent system may be used with the written approval of the engineer.

Producer	Coat	Products	Dry Film Minimum Thickness (mils)	Minimum Time Between Coats (hours)
Sherwin Williams 1051 Permeter 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 Aubum, WA 98001	Tie	MC-Ferrox B 100	3.0 to 5.0	8
	Top	MC-Luster 100	2.0 to 4.0	NA

B.2 Color

The finished color for coating system for wall railing shall match Federal Color 37038 – Black. At least15 working days prior to the start of Wall Railing installation, supply one 3-foot x 3-foot sample of the steel pipe handrail with the proposed finish and color. The final finish and color are to be approved by the engineer prior to placement in the field.

C Construction

Delete standard spec 513.3.1(6) and replace with the following:

After fabrication, blast clean railing pipe assemblies per SSPC-SP 6 and galvanize according to ASTM A 123. Steel preparation includes the chamfering of sharp edges. All sharp edges shall be flattened by a single pass of a grinder or suitable device along the sharp edge. Condition any thermal cut edges before blast cleaning by shallow grinding or other cleaning to remove any hardened surface layer. Remove all evident steel defects exposed in accordance to AASHTO M 160 prior to blast cleaning.

After galvanizing, paint all exterior surface of wall railing as hereinafter provided. All exterior galvanizing surfaces shall be cleaned per SSPC-SP1 to remove, chlorides, sulfates zinc salts, oil, dirt, organic matter and other contaminants. The cleaned surface should then be Brush Blast Cleaned per SSPC-SP7 to create a slight angular surface profile (1.0 – 1.5 mils) for adhesion. Blasting shall not fracture the galvanized finish or remove any dry film thickness.

After cleaning provide a tie primer coat from an approved coating system that is specifically intended to be used on a galvanized surface. The tie coat shall etch the galvanized rail and prepare the surface for the top coat. Apply a top coat matching the specified color. The tie and top coats should be of contrasting colors. Use a pre-approved top coat that is resistant to the effects of the sun, and is suitable for use in a marine environment. Exercise care so as not to damage the painted surface during railing installation.

D Measurement

The department will measure Wall Railing 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.0090.0210	Wall Railing	LF

Payment for Wall Railing is full compensation for providing, fabricating, transporting, and erecting the rail; for preparation, galvanizing, cleaning and painting; for providing and placing metal shims under the bases if required; and for providing and placing the anchor bolts.

188. Cable Aerial Aluminum 2 AWG Quadruplex, Item SPV.0090.1005; Cable Aerial Aluminum 4 AWG Quadruplex, Item SPV.0090.1006; Cable Aerial Aluminum 6 AWG Quadruplex, Item SPV.0090.1007.

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	1.5	45	2	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 of 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 2 AWG Quadruplex; Cable Aerial Aluminum 4 AWG Quadruplex; Cable Aerial Aluminum 6 AWG Quadruplex in length by the linear foot in place, acceptably completed, and will be taken as the length of the messenger wire. Measurement will be made in a straight line between changes in direction and to the centers of light standards and control cabinets. Sag of the aerial cable or vertical cable will not be measured for payment. The rewiring to facilitate relocation of the cable due to staging or other construction requirements will not be measured for payment.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.1005	Cable Aerial Aluminum 2 AWG Quadruplex	LF
SPV.0090.1006	Cable Aerial Aluminum 4 AWG Quadruplex	LF
SPV.0090.1007	Cable Aerial Aluminum 6 AWG Quadruplex	LF

Payment is full compensation for providing electrical wire; for making all connections; for providing all connectors, including wire nuts, fuses, fuse holders, splices, tape, and insulators; for providing messenger wire, and guy wires; and for removing temporary overhead cable.

189. Conduit HDPE 3 Duct 2-Inch, Item SPV.0090.2001.

A Description
This special provision section describes furnishing and installing HDPE conduit in accordance to section 671 of the standard specifications.

B Materials
Supply material according to standard spec 671.2.

C Construction
Install the conduit according to standard spec 671.3.

D Measurement
The department will measure Conduit HDPE 3 Duct 2-Inch according to standard spec 671.4.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.2001	Conduit HDPE 3 Duct 2-Inch	LF

Payment is full compensation in accordance to standard spec 671.5.

190. Fence Decorative, Item SPV.0090.4010.

A Description
Fabricate, galvanize, paint, deliver and install decorative fencing on bridge superstructures, wingwalls, or retaining walls.

B Materials
B.1 General
All materials shall meet 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

After fabrication and prior to bolting and assembling the fence components, steel shall be blast cleaned per SSPC-SP 6 and galvanized according to ASTM A 123. All bolts, nuts and washers shall be supplied as factory galvanized according to ASTM A 153. Repair zinc coating damaged during fence assemblage as specified in standard spec 635.3.5. Grind the welded joints to a smooth finish where shown in the plans.

Steel preparation includes the chamfering of sharp edges. All sharp edges shall be flattened by a single pass of a grinder or suitable device along the sharp edge. Condition any thermal cut edges before blast cleaning by shallow grinding or other cleaning to remove any hardened surface layer. Remove all evident steel defects exposed in accordance to AASHTO M 160 prior to blast cleaning.

The fence fabric shall consist of 8 GA. 2 inch by 2 inch welded wire mesh galvanized to ASTM A 123 and then painted with a pre-approved tie and top coat as given in this special provision. The vertical wires of the mesh shall be placed on the inside (Pedestrian/Traffic side) face of the fence.

B.2 Painting

All galvanizing surfaces shall be cleaned per SSPC-SP1 to remove chlorides, sulfates zinc salts, oil, dirt, organic matter and other contaminants. The cleaned surface should then be Brush Blast Cleaned per SSPC-SP7 to create a slight angular surface profile (1.0 – 1.5 mils suggested) for adhesion. Blasting shall not fracture the galvanized finish or remove any dry film thickness.

After cleaning provide a tie coat from an approved coating system that is specifically intended to be used on a galvanized surface. The tie coat shall etch the galvanized rail and prepare the surface for the top coat. Apply a top coat matching the specified color. The tie and top coats should be of contrasting colors. Use a pre-approved top coat that is resistant to the effects of the sun, and is suitable for use in a marine environment. The various decorative fence components shall be painted with the tie and top coats before final assembly of the fence panels. Exercise care so as not to 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 Permeter 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 Aubum, WA 98001	Tie	MC-Ferrox B 100	3.0 to 5.0	8
	Top	MC-Luster 100	2.0 to 4.0	NA

B.2 Color

The finished color for coating system for decorative fencing shall match Federal Color 37038 – Black

C Construction

Provide shop drawings in accordance to the requirements of standard spec 506.3.2. Shop drawings shall contain 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. Do not begin fabrication prior to shop drawing review and acceptance.

Provide a full sized painted 6-foot by 10-foot test panel for the fence. The test panel shall be ten feet long. The test panel shall be delivered to the job site within 60 days of the award of the contract. Unload and set up test panel in an area designated by the engineer. Do not begin fabrication of fences prior to the test panel acceptance.

During construction and at the time of delivery the engineer shall inspect the frame components. The engineer shall accept the product after the delivery is unloaded on the site. After the product is unloaded, the installation contractor will 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.

All welding shall conform to the applicable requirements of standard spec 506. No field welding, field cutting, or drilling will be permitted without the approval of the engineer.

Take special care during construction to minimize the number and size of touch-up spots. Follow the manufacturer's recommendations for damaged area repairs. The engineer must approve the field paint appearance prior to final acceptance.

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 fabricator that the finish shall be repaired in accordance to the manufacturer's recommendations.

D Measurement

The department will measure Fence Decorative 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.0090.4010	Fence Decorative	LF

Payment is full compensation for fabricating painting, galvanizing and delivering test panel to site; fabricating, furnishing, delivering and unloading fence panels, lighting access panels, posts; installing fence posts and panels and hardware; and for preparing shop drawings, painting, galvanizing metal fence components.

191. Piling Sleeves Micropiles, Item SPV.0090.4020.

A Description

The work under this item consists of furnishing and installing a steel piling sleeve for micropiles in the reinforced earth zone of mechanically stabilized earth (MSE) retaining walls and other locations shown in the plans. Perform work in accordance to the plans and as herein after provided.

B Materials

The piling sleeve shall conform to the requirements of ASTM A252, Grade 1 or 3. The piling sleeve shall be able to withstand the stresses due to hydrostatic and earth pressures. The piling sleeve may be new "Structural Grade" (a.k.a. "Mill Secondary") steel pipe meeting above but without mill certification, free from defects (dents, cracks, tears) and with two coupon tests per truckload delivered to the fabricator. Piling sleeves need not be galvanized; if the piling sleeves are galvanized, galvanization shall conform to the requirements of ASTM A-153.

For piling sleeves that will be shop or field welded, the following fabrication or construction conditions apply. The steel pipe shall not be joined by welded lap splicing, welded seams and splices shall be complete penetration welds, partial penetration welds may be restored in conformance with AWS D1.1, and the proposed welding procedure certified by a welding specialist shall be submitted for approval.

C Construction

Set the piling sleeve within 1/4 inch of the required position indicated on the plans prior to placing the reinforced earth. Brace sleeve to maintain position within 1/4 inches of required position as backfilling proceeds. Place soil reinforcing mats around sleeve.

Any damage that would hinder the installation of the pile must be corrected prior to placing any additional reinforced earth.

Keep inside of piling sleeve free from backfill, concrete, or any other material before and after micropile installation.

D Measurement

The department will measure Piling Sleeves Micropiles by the linear foot, 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.0090.4020	Piling Sleeves Micropiles	LF

Payment is full compensation for furnishing and installing the piling sleeve.

192. 10.75-Inch Micropile Foundation, Item SPV.0090.4030, 11.75-Inch Micropile Foundation, Item SPV.0090.4031.

A Description

Work under this item consists of furnishing and installing micropiles and pile top attachments for this project. Perform work in accordance to pertinent parts of the standard specifications, the plans, and these special provisions.

This section also describes methods used to determine the factored design load, as shown on the plans.

The construction of the micropiles shall be performed in accordance to the Wisconsin Bridge Manual (LRFD) and the 2010 AASHTO LRFD Bridge Design Specifications.

A.1 Definitions

Admixture: Substance added to the grout to control bleed and/or shrinkage, improve flowability, reduce water content, or retard setting time.

Bond-Breaker: A sleeve placed over the steel reinforcement to prevent load transfer.

Bond Length: The length of the micropile that is bonded to the ground and used to transfer the applied axial loads to the surrounding soil.

Casing: Steel tube introduced during the drilling process in overburden soil to temporarily stabilize the drill hole. This is usually withdrawn as the pile is grouted, although in certain types of micropiles, some casing is permanently left in place to provide added pile reinforcement. Plans show locations where casing must be permanently left in place.

Centralizer: A device to support and position the reinforcing steel in the drill hole and/or casing so that a minimum grout cover is provided.

Coupler: The means by which load capacity can be transmitted from one partial length of reinforcement to another.

Duplex Drilling: A method of progressing and cleaning out a hole for installing a micropile in which the outer casing is progressed simultaneously with an inner drill rod string. The casing is cleaned out using reverse circulation using water. Intimate contact between the soil and an outer casing is maintained during drilling. Withdrawal and/or pulling up of the casing during drilling, or failure to fully support the hole for the micropile prior to introduction of the grout into the hole shall not be permitted.

Encapsulation: A corrugated or deformed tube protecting the reinforcing steel against corrosion, which is sometimes referred to as sheathing.

Factored Design Load: The maximum test load that verification and proof load test micropiles must safely carry. The factored design load is equal to the factored axial load using LRFD methodology.

Factored Resistance: The ultimate resistance composed of the lower of the geotechnical resistance and structural resistance, multiplied by resistance factors applied as is shown on the plans. The factored resistance is greater than or equal to the factored design load.

Free (unbonded) length: The designed length of the micropile that is not bonded to the surrounding ground or grout.

Micropile: A small-diameter, bored, cast-in-place composite pile, in which the applied load is resisted by steel reinforcement, cement grout and frictional grout/ground bond.

Nominal Grout-to-Ground Bond Values: The estimated ultimate geotechnical unit grout-to-ground bond strength selected for use in design.

Overburden: Material, natural or placed, that will require cased drilling methods to provide an open borehole to underlying strata.

Positive Circulation or Flush: A method of progressing and cleaning out a hole for a micropile wherein water is injected into the hole and returns upward along the inside of the drill casing.

Post-grouting: The injection of additional grout into the load transfer length of a micropile after the primary grout has set, also known as regrouting or secondary grouting. A method used to increase micropile capacity after the grout column has reached initial set. Grout is pumped at high pressure through a sleeved port pipe (post-grout tube), fracturing and expanding the grout column. A positive displacement piston pump with a liquid filled pressure gauge located near the micropile head is used to pump the grout, and packers are used to isolate the grout ports.

Pressure Grouting: A method used to develop micropile capacity wherein controlled pressure is applied continuously to the top of the fluid grout column using a grout pump to inject additional grout, and is applied continuously within the bond length.

Primary Grout: Portland-cement-based grout injected into the micropile hole prior to or after the installation of the reinforcement to direct the load transfer to the surrounding ground along the micropile.

Production Pile: A pile used for supporting a structure. Production piles shall be installed using the same equipment, methods, and materials as accepted test piles.

Proof Load Test: Incremental loading of a production micropile, recording the total movement at each increment.

Recirculation: A method of handling drill fluid where the fluid coming back out of the hole is captured in a pan and reused.

Reinforcement: The steel component of the micropile that accepts and/or resists applied loadings.

Required Ultimate Resistance: The limiting resistance of the geotechnical resistance or structural resistance.

Reverse circulation: A method of cleaning the inside of casing. Water is circulated down through the drill rods and returns upward through the inside of the casing to flush the casing clean.

Spacer: A device to separate elements of a multiple-element reinforcement.

Test Piles: Sacrificial test piles that are not incorporated into the substructure, and which are abandoned after completion of testing. Non-production test piles shall be installed using the same equipment, methods, materials, and under the same headroom as production piles.

Tremie Grouting: A method used to place grout in a wet hole. A 1/2-inch to 1-inch inside diameter grout tube is placed to the bottom of the drill hole. While keeping the tube opening submerged in the grout, grout is pumped into the hole and displaces the drill fluid.

Verification Load Test: Pile load test performed to verify the design of the pile system and the construction methods proposed, prior to installation of production piles.

A.2 Contractor Qualifications

A.2.1 Micropile Contractor

The micropile contractor may be the contractor or his approved subcontractor performing this work, and shall be a reputable firm regularly engaged in the design and installation of micropiles. The micropile contractor shall be experienced in the construction and load testing of micropiles and have successfully constructed at least 5 projects in the last 5 years involving construction totaling at least 100 micropiles of similar capacity and type to those required in these plans and specifications. The contractor shall have previous micropile drilling and grouting experience in soil similar to project conditions. The contractor shall submit construction details, structural details and load test results for at least three previous successful micropile load tests from different projects of similar scope to this project.

A.2.2 Field Supervisor

The contractor shall assign a designated representative to supervise the work with experience on at least 3 projects of similar scope to this project completed over the past 5 years. Provide written verification of the supervisor’s experience. Prior to the initiation of micropile installation, the qualifications of the contractor, or his subcontractor, and the

field supervisor will be subject to review and approval by the engineer. The field supervisor shall be present at the work site at all times during micropile operations.

A.2.3 On-Site Foreman and Drill Rig Operator

The on-site foremen and drill rig operators shall also have experience on at least 3 projects over the past 5 years installing micropiles of equal or greater capacity than required in these plans and specifications.

A.2.4 Micropile Design Engineer

The micropiles shall be designed by a professional engineer licensed in Wisconsin with experience in the design of at least 3 successfully completed micropile projects over the past 5 years, with micropiles of similar capacity to those required in these plans and specifications. The micropile design engineer may be either an employee of the contractor or a separate consultant design engineer meeting the stated experience requirements. Contractor or his approved subcontractor shall identify the design consultant and the owner for each referenced project for which this type of work was performed. Contractor or his approved subcontractor shall provide proof to the engineer of each project no later than 30 calendar days after Notice to Proceed. Such evidence shall include the name and location of the project, client name and address, and the name and telephone number of a representative of the consultant and owner for whom the work was performed and who can attest to successful completion of the Work.

A.2.5 Documentation

A project summary shall be included for each referenced project. The project summary shall contain the start date and completion date of the project, total contract amount for the micropiles and a detailed description of the project, site conditions, and subsurface conditions. The project description shall include the nature of the project, details of the micropile design, installation techniques, total length of micropiles installed, design capacity and load test capacity, individual length of pile installed, and any other information relevant to demonstrating contractor's qualifications. The engineer may suspend the work if the contractor uses non-approved personnel. If work is suspended, the contractor shall be fully liable for all resulting costs and no adjustment in contract time will result from the suspension.

A.3 Submittals

Work other than test pile installation shall not begin until the construction submittals have been received, reviewed, and accepted in writing by the engineer. Allow the engineer 21 calendar days to review the construction submittals after a complete set has been received. Additional time required due to incomplete or unacceptable submittals shall not be cause for delay or impact claims. All costs associated with incomplete or unacceptable contractor submittals shall be the responsibility of the contractor. Review by engineer does not relieve the contractor of his responsibility for the design and installations of the micropiles that are capable of supporting the factored design loads and meeting the criteria shown on the plans.

Submit the following:

- Contractor qualifications noted above.
- Design calculations, including:
- Grout-to-ground bond and axial resistance and any other pertinent calculations.
- Minimum tip elevation (no less than that included in the plans and required to satisfy the required ultimate resistance).
- Factored design load shown on the plans.
- Resistance Factors shown on the plans.
- Design for any temporary construction load case desired by the contractor.
- The design calculations shall be signed and dated by a professional engineer registered in the State of Wisconsin.
- Shop Drawings, including:
- Micropile diameter, casing diameter, casing thickness, bond length, grout compressive strength.
- Permanent casing nominal diameter, length, and size.
- Reinforcement.
- Post-grout tube and grouting pressure.
- Pile-to-footing connection details.
- Working and staging areas.
- Layout drawings showing the proposed sequence of pile installation.
- The shop drawings shall be signed and dated by a professional engineer registered in the State of Wisconsin.
- Site Specific Work Plan (SSWP)
- Installation equipment, including lifting capacities, vertical clearance compared to clearance available, manufacturer's information, model, size, and type of equipment.
- Micropile installation methods including; the consecutive steps and the approximate time required for each step and labor and equipment usage schedule, any interference to any existing structures, facilities, or utilities as a result of the micropile installation, methods to be used to control and verify pile position and alignment, procedures for proper removal and disposal of all wastes, including groundwater, and spoils including drilling fluid, cuttings, and grout, details of placement, splicing and centering devices for steel reinforcing, and the procedures for placing the grout.
- Details for pressure grouting, when used, including the method, grouting pressure, procedure, and equipment to be used. It shall also include details for post-grouting, when used, including the method, grouting pressure, grout tube arrangements, procedure, and equipment to be used.
- Methods to flush the drilled hole and methods or equipment for measuring volumes of grout placed in each hole, depths, and pressures, and estimated curing time for grout to achieve specified strength. If available, the grouting rate shall be calculated based on the initial pump pressures or static head on the grout and losses throughout the placing system, including anticipated head of drilling fluid (if applicable) to be displaced.

- Micropile Verification Tests (as outlined in special provisions in the Micropile Verification Load Test and Micropile Proof Load Test articles)
- Materials Certifications
- Certified mill test reports for the reinforcing steel or coupon test results for permanent casing without mill certification. The ultimate strength, yield strength, elongation, and material properties composition shall be included. (For API N-80 pipe casing, coupon test results may be submitted in lieu of mill certification.)
- Certification of FHWA's Buy American requirements contained in 23 CFR 635.410.
- Grout mix design and documentation from an independent testing laboratory; including proportions of the batch, the manufacturer of the components, and compressive strength.
- Engineering Installation Records
- The records shall be submitted within 24 hours after installation is completed for the micropile. The records shall include;
- Micropile number designation, pile materials and dimensions.
- Elevation of top of micropile, elevation and dimension of the top of the bond length
- Micropile drilling logs including start and finish time(s), final tip elevation, cut-off elevation, factored design load, resistance factor and testing method relating to the resistance factor, corresponding required ultimate resistance, type, length, and size of reinforcing steel, and description of unusual installation behavior or conditions.
- Grout pressures attained if pressure grouting or post-grouting is performed.
- Post-grouting details, when performed, grout quantities pumped, theoretical grout volume, and time required for each operation.
- As-Built Plans
- Submit upon the completion of the micropile installation, the following;
- Pile location, depth and inclination from vertical, factored design load, resistance factors, corresponding required ultimate resistance and cross sectional properties.

A.4 Pre-Construction Meeting

A pre-construction meeting will be scheduled by the engineer and held prior to the start of micropile construction. The engineer, prime contractor, micropile specialty contractor, micropile design engineer, excavation contractor and geotechnical instrumentation specialist (if applicable) shall attend the meeting. Attendance is mandatory. The pre-construction meeting will be conducted to clarify the construction requirements for the work, to coordinate the construction schedule and activities, and to identify contractual relationships and delineation of responsibilities amongst the prime contractor and the various subcontractors; specifically those pertaining to excavation for micropile structures, anticipated subsurface conditions, micropile installation and testing, micropile structure survey control and site drainage control.

B Materials

Furnish materials new and without defects. Remove defective materials from the jobsite at no additional cost. Materials for micropiles shall consist of the following:

B.1 Steel Casing

Permanent steel casing/pipe shall have the diameter and at least the minimum wall thickness shown on the approved Shop Drawings. Provide steel casing with flush joint for micropiles conforming to the tensile requirements of API 5CT or 5L Grade N80. The casing should be able to withstand the stresses associated with advancing it into the ground, in addition to the stresses due to hydrostatic and earth pressures. The casing may be new "Structural Grade" (a.k.a. "Mill Secondary") steel pipe meeting above but without mill certification, free from defects (dents, cracks, tears) and with two coupon tests per truckload delivered to the fabricator.

For permanent casing/pipe that will be welded for structural purposes, the following material conditions apply. The carbon equivalency (CE) as defined in AWS D1.l, Section XI5.1, shall not exceed 0.45, as demonstrated by mill certifications. 2. The sulfur content shall not exceed 0.05%, as demonstrated by mill certifications.

For permanent casing/pipe that will be shop or field welded, the following fabrication or construction conditions apply. The steel pipe shall not be joined by welded lap splicing, welded seams and splices shall be complete penetration welds, partial penetration welds may be restored in conformance with AWS D1.1, and the proposed welding procedure certified by a welding specialist shall be submitted by the contractor to the engineer for approval. Threaded casing joints shall develop at least the required compressive, tensile, and/or bending strength used in the design of the micropile.

B.2 Reinforcing

Reinforcing steel shall be deformed bars in accordance to ASTM A 615/AASHTO M31, Grade 420 or Grade 520 or ASTM A 722/AASHTO M275, Grade 1035. When a bearing plate and nut are required to be threaded onto the top end of reinforcing bars for the micropile top to footing anchorage, the threading may be continuous spiral deformed ribbing provided by the bar deformations (e.g., Dywidag or Williams continuous threadbars) or may be cut into a reinforcing bar. If threads are cut into a reinforcing bar, the next larger bar number designation from that shown on the plans shall be provided, at no additional cost. Bar couplers, if required, shall develop the ultimate tensile strength of the bars without evidence of any failure, and be sized such that they allow the passage of grout between the casing and coupler. The corrosion protection required is a function of the site conditions and is specified on the plans. Requirements for particular corrosion protection methods are specified below:

B.2.1 Encapsulation

Encapsulation (double corrosion protection) shall be shop fabricated using high-density, corrugated polyethylene tubing conforming to the requirements of ASTM D3350/AASHTO M252 with a nominal wall thickness of 0.8 mm. The inside annulus between the reinforcing bars and the encapsulating tube shall be a minimum of 5mm and be fully grouted with non-shrink grout.

B.2.2 Epoxy Coating
The minimum thickness of coating applied electrostatically to the reinforcing steel shall be 0.3 mm. Epoxy coating shall be in accordance to ASTM A775 or ASTM A934. Bend test requirements are waived. Bearing plates and nuts encased in the pile concrete footing need not be epoxy coated unless the footing reinforcement is epoxy coated.

B.2.2 Galvanization
Galvanization need not be used; if used, galvanization shall meet the requirements of ASTM A-153.

B.2.3 Sheathing
Smooth plastic sheathing, including joints, shall be watertight. Polyvinyl chloride (PVC) sheathing shall conform to ASTM D 1784, Class 13464-B.

B.3 Cement Grout
Cement Grout shall be neat cement or sand/cement mixture with a minimum 3-day compressive strength of 2,000 psi and a 28-day compressive strength of 4,000 psi per AASHTO T106/ASTM C109.

The grout shall be pumpable and consisting of a non-shrinking mixture of Portland cement, mineral filler, plasticizer, sand and water so proportioned and mixed as to provide a grout capable of maintaining the solids in suspension without appreciable water gain, yet which will laterally penetrate and fill any voids in foundation material.

All cement shall be Portland cement conforming to ASTM C 150/AASHTO M85, Types I, II, III or V.

If sand-cement grout is used, sand shall conform to ASTM C 144/AASHTO M45. Sand shall conform to ASTM C 404, Size No. 1.

Water used in the grout mix shall conform to AASHTO T 26 and shall be potable, clean, and free from substances that may be injurious to cement and steel.

Mineral filler shall be finely powdered siliceous material, which possesses the property of chemically reacting in the presence of moisture with calcium hydroxide at ordinary temperatures to form compounds possessing cementitious properties.

Plasticizer shall be a compound possessing characteristics which will increase the flowability of the mixture, assist in the dispersal of cement grains, and neutralize the setting shrinkage of the cement mortar.

Any admixtures with chlorides are prohibited. Admixtures shall conform to the requirements of ASTM C 494/AASHTO M194. Admixtures that control bleed, improve flowability, reduce water content, and retard set may be used in the grout, subject to the review and acceptance of the engineer. Admixtures shall be compatible with the grout and mixed in accordance to the manufacturer's recommendations. Expansive admixtures

shall only be added to the grout used for filling sealed encapsulations and anchorage covers. Accelerators are not permitted.

Materials shall be stored in accordance to ACI 304.

Molding and testing of grout specimens shall be in accordance to ASTM C 109.

B.4 Centralizers

Centralizers shall be fabricated from schedule 40 PVC pipe or tube, steel, or a material that is non-detrimental to the reinforcing steel. Centralizers shall be able to withstand installation without causing misalignment of the reinforcement and shall allow free flow of grout through them. Wood shall not be used.

C Construction

C.1 General

Coordinate the work and the excavation so the micropile structures are safely constructed. Perform the micropile construction and related excavation in accordance to the plans and approved submittals. The contractor shall use appropriate micropile installation procedure as approved by engineer to achieve the required pile capacity. The site has tight railroad clearances among other constraints, and it is the responsibility of the contractor to assess this and properly select equipment and construction methods to allow the work to be performed within the constraints.

Use only one type of micropile throughout the structure unless shown on the plans or the engineer allows otherwise.

Coordinate all micropile installation operations so that no damage or displacement occurs to nearby structures (including adjacent foundations) and utilities because of micropile installation operations. All construction-induced damage shall be repaired to the satisfaction of the engineer at no additional cost to the department.

Do not install micropiles for any substructure unit until the excavation for that unit is complete. Remove any material within the limits of the footing to the correct elevation before placing concrete. All necessary removal of material will be at no expense to the department.

Piles shall not be installed within 5-feet of piles that are less than 24 hours old.

Install all micropiles with a variation of not more than ¼ inch per foot from the vertical or from the batter shown on the plans. Install micropiles for bents so that no pile is more than 3/4 inches from the position shown on the plans after installation, and that placing the cap on the micropiles does not adversely affect the resistance of the micropiles. Ensure that all other micropiles are within 1 1/2 inches of the position the plans show after installation.

Do not damage micropiles by applying excessive force to correct misalignment.

Remove and replace all micropiles that are in the engineer's judgment unsuitable for use due to improper positioning, misalignment, or damage such as bends, breaks, kinks, deformation, cracking, or spalling resulting from internal defects, improper handling, or improper drilling. Other corrective measures may be used if approved by the engineer. All corrective measures shall be at no expense to the department.

Conform to the requirements of standard spec 550.3.4 for all welds and welding necessary for micropile splices.

C.2 Casing Installation

Permanent casing shall be fully supported along its length and in intimate contact with the soil or encapsulated in grout which shall be in intimate contact with the soil.

Vibratory pile driving hammers shall not be used to advance casing. Driven or rotary spinning techniques may be used to advance casing.

C.3 Drilling

The contractor shall use appropriate methods to maintain a stable hole and prevent collapse and disturbance to the drilled hole during the installation of the micropile. The drilling equipment and methods shall be suitable for drilling through the conditions to be encountered, without causing damage to any overlying or adjacent structures or utility services. The drill-hole must be open along its full length to at least the design minimum drill-hole diameter prior to placing grout and reinforcement.

The contractor's proposed method(s) to provide drill-hole support and to prevent detrimental ground movements shall be reviewed by the engineer. Detrimental ground movement is defined as movement which requires remedial repair measures.

Use of drilling fluid containing bentonite is not allowed. Temporary casing or other approved methods of micropile drill-hole support will be required to permit the micropile shaft to be formed to the minimum design drill-hole diameter. Advance the hole using duplex drilling methods and reverse circulation within the drill casing. Positive circulation or flushing, a method of progressing and cleaning out a hole for a micropile wherein water is injected into the hole and returns upward along the outside of the drill casing will not be allowed. The use of air to clean the casing will not be allowed.

Contractor shall use appropriate methods to maintain a stable open hole during the installation of the micropile.

Perform drilling and excavation in such a manner to prevent collapse of the hole. The drill tool shall be kept no further than 3 inches ahead of the end of the drill casing at all times. For the cutting shoe used for advancing the casing, the cutting shoe diameter shall not exceed the outer diameter of the casing plus 6.4 mm (0.25-inch). Drill fluid and cuttings shall be controlled by diverters, or other methods approved by the engineer that produce a closed system allowing all drill spoil to be placed in settling tanks for

separation of fluid and solids for eventual disposal. It is contractor's responsibility to provide drilling methods and equipment capable of attaining the required micropile depth and capacity. Use of bentonite or polymer slurry will not be permitted.

Drilling casing shall be in intimate contact with the bored holes sides at all times. Casing spinning, sudden or rapid withdrawn and plunge or similar operating procedures that may result in disturbance, collapse or an unsupported drill hole shall not be permitted during micropile installation.

If obstructions, such as boulders, are encountered during excavation for a pile, progress through them by means of coring, using a tri-cone roller bit, or appropriate rock cutting bit. Use of drop type impact hammers and blasting will not be permitted.

The use of a down-the-hole hammer (DTHH) must be approved by the engineer. The use of the down-the-hole hammer will not be allowed within 20-feet of micropiles that were grouted within the previous 24 hours. If, when using the DTHH disturbance to freshly grouted piles greater than 20-feet away is observed, then contractor shall stop using the down-the-hole hammer until such time that any disturbance to completed piles is avoided. If, during the installation of the micropiles, adverse effects on adjacent structures or utilities are observed, then further use of the DTHH will not be allowed until remedial actions are provided to eliminate these adverse effects. The costs associated with the remedial measures will be contractor's responsibility.

Control the procedures and operations to preclude undermining, disturbance, or settlement to adjacent structures or utilities. If any disturbance occurs, halt operations and modify the equipment and/or procedures so that no further disturbance occurs. Repair any disturbance to the satisfaction of the engineer and at no cost to the department.

Control the procedures and operations so as to prevent the soil at the bottom of the hole from flowing into the hole. Maintain the fluid level inside the hole above the ground water level at all times during installation and cleaning out. Monitor and record the rate of fluid flow used to progress the hole.

Wastes and spoils must be disposed of in an appropriate manner. Deposition of waste and spoil on local streets and in sewers will not be permitted.

Do not drill a hole, or place grout within 5-feet (center-to-center) of a micropile until the grout for the micropile has been in place for a minimum of 24 hours.

Pre-drilling more than one hole or incomplete drilling of holes shall not be permitted unless otherwise approved by the engineer. All incomplete micropiles that are in-progress shall be capped or covered during overnight or weekend breaks for safety and to prevent any objects from falling in.

Complete drilling and install steel casing to the required depths. Clean hole with water before installing reinforcing steel or grout and until all contaminated water, drilling fluid, and cuttings are removed and a clean return is observed.

C.3.1 Concrete Coring Through Existing Retaining Wall Footings
For micropiles installed through existing retaining wall footings, core through the footing using appropriate equipment in accordance to plan details. Contractor shall alternate, at no cost to the department, use of appropriate drilling and coring equipment for drilling through soil and coring through concrete during the installation of micropiles through existing retaining wall footings.

C.3.2 Obstructions
Prepare for the possibility to dispatch obstructions during drilling, since soil profile indicates the possibility of encountering of gravel, cobbles, and boulders. Keep on-site appropriate equipment to dispose of gravel, cobbles, boulders, or other obstructions in the event they are encountered. The time, labor and equipment to dispose of obstructions are incidental to this special provision and will not be paid for separately.

C.4 Placing Reinforcement
Reinforcement may be placed either prior to grouting or placed into the grout-filled drill-hole before temporary casing (if used) is withdrawn. Reinforcement surface shall be free of deleterious substances such as soil, mud, grease or oil that might contaminate the grout or coat the reinforcement and impair bond. Reinforcement, if used, shall be sufficiently robust to withstand the installation and grouting process and the withdrawal of the drill casings without damage or disturbance. Reinforcing steel bars shall be placed in each micropile as shown on the plans.

The contractor shall check micropile top elevations and adjust all installed micropiles to the planned elevations. Centralizers and spacers (if used) shall be provided at 10-foot centers maximum spacing. The upper and lower most centralizer shall be located a maximum of 5-feet from the top and bottom of the micropile. Centralizers and spacers shall permit the free flow of grout without misalignment of the reinforcing bar(s) and permanent casing. The central reinforcement bars with centralizers shall be lowered into the stabilized drill-hole and set. The reinforcing steel shall be inserted into the drill-hole to the desired depth without difficulty. Partially inserted reinforcing bars shall not be driven or forced into the hole. Contractor shall re-drill and reinsert reinforcing steel when necessary to facilitate insertion.

Lengths of casing and reinforcing bars to be spliced shall be secured in proper alignment and in a manner to avoid eccentricity or angle between the axes of the two lengths to be spliced.

Splices and threaded joints shall meet the requirements the materials requirements of this special provision. Threaded pipe casing joints shall be located at least two casing diameters (OD) from a splice in any reinforcing bar. When multiple bars are used, bar splices shall be staggered at least 1-foot.

C.5 Grouting

The grouting procedure and the grouting pressure used for the installation of the micropiles must be submitted to the engineer for approval before any grouting operations begin. The contractor shall also determine the micropile casing size, final drill-hole diameter and bond length, and central reinforcement steel sizing necessary to develop the specified load capacities and load testing requirements. The contractor is also responsible for estimating the grout take. Post-grouting may be required in production piles if the static load test program indicates that post-grouting is required to achieve the design capacity. If post-grouting is proposed, load tests have to be performed on post-grouted piles which shall be approved by the engineer with no additional costs to the department.

Place grout by means of a tremie pipe extending to the bottom of the micropile and pump upward to displace the fluid in the hole until grout returns at the top of the pile. The above operation shall be continued until the grout coming out has the same consistency as the grout being pumped into the micropile through the tremie pipe.

The steel reinforcement and centralizers shall be lowered into the tremie-grouted cased holes to the desired depth without difficulty. Partially inserted reinforcing bars shall not be driven or forced into the hole. Centralizer shall be located at distances shown on the plans.

Micropile shall be tremie grouted the same day the load transfer bond length zone is drilled. Construction cold joints will not be permitted in the grouted concrete column. After tremie grouting has been completed and the grout still remains fluid, the steel casing shall be withdrawn, as shown on the plans. Permanent casing is required for the micropiles.

Provide the equipment, materials and appropriate grout pressures to perform pressure grouting in all test piles.

If contractor plans to use pressure grouting, then casing shall not be withdrawn at the end of tremie grouting.

After tremie grouting has been completed and the grout still remains fluid, the steel casing shall be withdrawn while additional grout is injected under pressure as shown on the plans. Permanent casing is required for the micropiles.

Pressure is usually applied by attaching a pressure cap to the top of the drill casing or drilling head and injecting additional grout into the casing under controlled pressure. The minimum pump pressure at the top of the steel casing shall be calculated by the contractor and provided in his submittal. The pressure gauge for grout pressure monitoring shall be capable of measuring pressure of at least 200 psi or twice the actual grout pressure to be used by the contractor, whichever is greater.

Closely control the rate of drill casing removal so that the grout level remains at the top of the casing. Perform pressure grouting and simultaneous casing withdrawal until the required bond length is achieved. Maintain a positive flow of grout into the pile after withdrawal of each length of casing.

After the required bond length is achieved, the steel casing shall be then pushed back down a minimum of 5-feet for permanent seating (plunge length).

Maintain the grout level at the top of the micropile until the grout has set.

Calculate and record the initial volume of grout required to fill the hole. Record the grout pressures and volume pumped during pressure grouting.

Post-grout load test piles if selected by contractor to achieve the design capacity. Provide the equipment and materials to perform post-grouting in test piles. The same procedure, equipment, and materials used to perform post-grouting for the test piles shall be used for production piles.

Perform post-grouting at least 48 hours after the primary grout or after the grout for the micropile has hardened.

The work consists of pumping grout under pressure into a post-grout tube cast into the micropile. The grout will exit the post-grout tube one port at a time, with the port being isolated using a packer system.

Record the pressure at which the grout was pumped and the volume pumped through each port.

For test piles, multiple post-grout tubes to perform staged post-grouting procedures may be considered.

C.6 Construction Tolerances

Install the piles so that the center of each micropile does not vary from the plan location by more than 3/4 inches. Do not allow the micropile to vary from the vertical (plumb) or established batter by more than one percent, as measured above ground.

Cut off the top of the micropile within one inch of the elevation shown on the plans or as directed by the engineer.

If the pile is post-grouted, monitor the elevation of the pile top during post-grouting. Do not permit pile uplift to exceed 1/4-inch.

Centerline of reinforcing steel bar shall not be more than 5/8 inch from indicated location on the drawings.

C.7 Pile Acceptance Criteria

For test piles, the micropile shall meet the load test acceptance criteria defined elsewhere in these special provisions.

All test micropiles shall be installed in accordance to the dimensions and procedures shown in the approved submittals, installation criteria established during load tests, and as specified herein.

All micropiles shall meet construction tolerance criteria specified herein.

Centerline of piling shall not be more than three inches from the indicated plan location.

Top elevation of pile shall be plus one inch or minus two inches maximum from vertical elevation indicated.

Unacceptable micropiles are piles that are rejected by the engineer because of damage, failure to advance through obstructions, mis-location, misalignment, failure to meet load test acceptance criteria, failure to install the micropile using the approved equipment and procedures, or failure to install the micropile to the proper depth. Submit a written plan of action to the engineer for approval, showing how to correct the problem and prevent its reoccurrence. Repair or augment the micropile to the satisfaction of the engineer to make it acceptable. To mitigate and/or to remedy unaccepted micropiles, contractor may be required to provide additional piles or supplement micropiles to meet specified requirements at no cost to the department. Any associated work required due to unacceptable micropiles shall be at no additional cost to the department. The contractor will not be paid for a rejected micropile until such time that the pile is repaired or augmented to the satisfaction of the engineer.

C.8 Grout Testing

During construction, samples selected at random of grout mix shall be taken daily (two sets of samples per pile). Each set consists of at least three 2-inch grout cubes. The engineer will control sample selection. Contractor shall be responsible for such testing by retaining an independent testing company to perform the grout testing, the cost of same deemed to be included in the cost of micropiles.

The samples shall be molded, cured in a properly constructed curing box supplied by contractor, tested in accordance to ASTM C 109, and shall reach a compressive strength after seven days equal to at least 60 percent of the design strength. If this requirement is not met, contractor shall modify the proportions of the mix subject to the approval of the engineer. If the required design strength is not attained after 28 days then contractor shall install replacement micropile(s) as required at no additional cost to the department. Any associated work required due to unacceptable micropiles shall be at no additional cost to the department.

Grout consistency as measured by grout density shall be determined by the contractor per ASTM C188 or API RP-13B-1 at a frequency of at least one test per micropile conducted just prior to start of pile grouting.

Compressive strength and grout density test results shall be submitted to the engineer within seven calendar days of grout sampling date.

Contractor shall modify the mix design if; a) an excessive amount of grout is lost from a micropile hole into voids in the in-place materials and b) if the rebar and centralizers get excessive resistance during installation.

Each batch of grout shall have the same volume and contain the same whole number of sacks of cement, unless a modification is approved by the engineer. Time of mixing shall be not less than three minutes.

If agitated continuously, the grout may be held in the mixer or agitator for a period not exceeding three hours at temperatures below 70 degrees Fahrenheit and for a period not exceeding two hours at higher temperatures.

If there is a lapse in pumping of the grout, the grout shall be re-circulated through the pump or through the mixer drum (or agitator) and pump.

Re-tempering of grout will not be permitted.

D Measurement

The department will measure 10.75-Inch Micropile Foundation and 11.75-Inch Micropile Foundation 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.0090.4030	10.75-Inch Micropile Foundation	LF
SPV.0090.4031	11.75-Inch Micropile Foundation	LF

Payment will be full compensation for drilling, coring through existing footings, disposing of obstructions, furnishing, and placing the reinforcing steel and casing, grouting, and micropile top attachments, and for providing all design, materials, labor grout testing, equipment, and incidentals to complete the contract work. Verification load tests and proof load tests are paid for separately.

193. Injected Polyurethane Concrete Crack Sealing, Item SPV.0090.4050.

A Description

This work consists of furnishing and installing a concrete crack sealing system with an injected non-shrink polyurethane grout for sealing of joints, cracks, fractures and holes in concrete, and the repair of expansion joints as directed by the engineer and as shown on the plans. The contractor may submit to the engineer for approval an alternate product to non-shrink polyurethane grout, from either of the products described in the bid items Covered Tunnel Waterproofing and Exposed Tunnel Waterproofing, conforming to the performance requirements of this special provision.

A.1 Contractor Qualifications

Contractor shall be an approved contractor of the manufacturer of the specified product, who has completed a program of instruction in the use of the specified repair material, and provide certification from the manufacturer attesting to their approved contractor status. Contractor shall be able to demonstrate past performance on jobs of similar scope and size.

A.2 Manufacturer's Representative

Make all arrangements and pay all costs to have manufacturer's authorized representative on the job at the beginning of all major phases of the work, including joint preparation and installation of polyurethane grout, to advise installer of the proper procedures and quality control techniques.

The representative shall remain at the job site after work commences and continue to instruct until the engineer is satisfied that the crew has mastered the technique of installing the system successfully. The representative shall make periodic visits to the project as the work progresses and shall confer on each visit with the contractor or engineer.

The manufacturer's field representative shall be fully qualified to perform the work and shall be subject to the approval of the engineer.

A.3 Submittals

Submit the following:

1. Product Data and Shop Drawings. Prior to ordering crack sealing materials, submit the items listed below to the engineer for approval:
    a. 3 copies of manufacturer's product data, installation instructions, use limitations and recommendations for polyurethane grout material used and for all other associated materials as requested by engineer. Grout materials shall be non-flammable and non-toxic when cured.
    b. Written approval of manufacturer's use of the products in the proposed system.
    c. Specimen copy of membrane manufacturer's warranty.
    d. Detailed procedure for the installation of the water reactive polyurethane grout.

2. Samples. Provide samples of each material to be used in the systems described herein, including primers, geotextile sheet goods, mastics, tapes, and fluid applied waterproofing.
3. Quality Assurance Submittals.
    a. Manufacturer Certification Letter.
    b. Source quality-control test reports.
    c. Field quality-control test reports.

A.4 Warranty

Manufacturer shall warranty this crack sealer for a period of 10 years from date of issuance of Certificate of Compliance for this crack sealer material.

B Materials

B.1 Polyurethane Chemical Grout

The grouting material shall be a low viscosity hydrophobic liquid. The grout shall be a polyurethane grout, developed to stop active leaks. The grout shall be nontoxic after curing. The liquid shall react with a catalyst to foam and expand to form a tough, rubber type gasket that stops water.

The product shall have the minimum performance standards for uncured polyurethane chemical grout as follows:

Property	Standard ASTM	Results
Solids Content	D1010	100%
Viscosity	D1638	400-600cps
Color	Visual	clear
Weight per gallon	D1638	>200^{o} F
Flash Point	(Pensky Martens)	
Corrosiveness		Noncorrosive
Shipping requirements		Class 55 Non hazardous

The product shall have the minimum performance standards for cured polyurethane chemical grout as follows:

Property	Standard ASTM	Results
Density	D3574	31 pcf
Tear Strength	D3574	40 PLI
Elongation	D3574	300%
Shrinkage	D756, D1042	0%
Toxicity		Non-Toxic

B.2 Packers

Packers are required for injection. Packers for injection shall be supplied from the manufacturer.

B.3 Hoses

Moisture impermeable hoses are required for use where grout material is being pumped.

B.4 Expansion Joint Backer Rod
The expansion joint backer rod shall be cross linked open cell polyurethane foam with a rectangular or circular cross section. The cross section of the cross linked open cell polyurethane foam shall be a minimum 150% of the width of the joint as measured between the cleaned concrete surfaces.

B.5 Surface Sealant
The Surface sealant for the expansion joints shall be a silicone joint sealing compound. The Sealant shall be gray in color.

B.6 Delivery, Storage and Handling
Deliver materials to job site in manufacturer's unpacked containers with all labels intact and legible at time of use. Maintain products in a dry condition during delivery, storage, handling, installation and concealment. Store dry at 50-90 degrees F. Material shall be 65-85 degrees F before using. Protect against freezing. Discard frozen material.

B.7 Manufacturer Certification
The manufacturer of the selected polyurethane crack injection sealant supplied shall provide written certification that the selected polyurethane crack injection sealant provided is suitable for the intended purpose and application to create watertight construction joints in various required locations of cut-and-cover tunnel structures.

C Construction
C.1 Surface Preparation
The cracks, holes, cold joints and fractures shall be clean, and sound. Remove dust, laitance, grease, curing compounds, waxes, impregnations, foreign particles, coatings, efflorescence, rust stains and disintegrated materials from the defects by wire brushing and scraping or mechanical means as approved by the manufacturer. All cracks, fractures, holes, joints, etc. shall be thoroughly flushed with clean water to remove dirt, dust and other contaminants. If joints or cracks that are being sealed are dry, water shall be pumped into the cold joint or crack before injecting grout.

Expansion joints to be repaired shall have all temporary drain gutters removed prior to surface preparation. The expansion joints shall be clean and sound. Remove all dust laitence, grease, curing compounds, waxes, impregnations, foreign particles, coatings, efflorescence, rust stains, fiber filler and any other unsuitable material which will inhibit bond to the dimensions shown on the drawings.

Repair cracks and cold joints by drilling offset test holes at a distance from the defect of 1/2 the depth of the concrete, at an angle sufficient to intersect the defect at approximately half the distance of the concrete. Injection hole spacing is normally 7 inches or up to 25 inches apart depending upon the width of the defect. Generally the wider the defect, the greater the distance of grout travel; therefore, the injection holes will be farther apart. The purpose of the test holes is to pump water into the crack or cold joint to determine spacing for injectors along the crack. Drill the holes to intersect the crack or

cold joint midway through the substrate. Install the injection packers in holes and tighten. If the defect to be injected is 1/2" or greater at surface, use oil free oakum saturated with grout and mixed with water. Hold oakum for 2 to 3 minutes to allow foaming and insert oakum into defect, hole or cold joint. Water shall be sprayed into area before inserting activated oakum.

For thin concrete walls of 6" or less, the injection holes should be drilled directly into the defect itself to prevent damage to the concrete.

The expansion joints shall be repaired by the insertion of the cross linked open cell polyurethane foam backer rod saturated with the Polyurethane hydrophobic grout into the expansion joint as shown on the plans. The selection of the backer rod cross section is to be performed after the joint is cleaned and measured. The backer rod cross section is to be 150% larger than the cross section of the open cleaned expansion joint.

C.2 Application

C.2.1 Installation Procedure Crack Injection

Mix grout as recommended by manufacturer. The injection equipment shall be used to meter the polyurethane chemical grout and dispense the product into the prepared crack, hole or joint. The unit shall be portable and be equipped with positive displacement type pumps with interlock to provide positive control of the polyurethane chemical grout at the nozzle. The pumps shall be air powered or electric and shall provide an in-line metering system and shall contain drain-back plugs. Follow manufacturer's recommendations for the use of safety equipment required for the handling and storage of the polyurethane grout.

C.2.2 Grout Injection

The basic steps for crack or joint repair are as follows:

- Clean area to be grouted.
- Drill holes for grout injection.
- Flush defect with water.
- Grout injection.
- Remove injectors.
- Patch injector holes.
- Remove excess surface grout.
- Apply a surface sealer to defect surfaces.

Flush the crack to be injected with clean potable water prior to the installation of the grout. Observe the return of the water from the surface of the crack prior to the moving to the next injection port for water flushing. The entire crack must be flushed prior to the injection of polyurethane grout.

Pump polyurethane chemical grout at 250 psi into or behind fissure or into voids which are allowing water to infiltrate into unwanted areas. If concrete being injected contains insufficient moisture to activate the grout, inject the defect with water prior to injecting the polyurethane chemical grout.

Pump polyurethane chemical grout for 45 seconds and then pause to allow the material to flow into all of the cracks and crevices. Watch for material flow and water movement to appear on the surface. When movement stops, begin injection into the next packer. When sealing vertical cracks, begin injecting at the bottom of the crack and work vertically. If faster reaction time is needed, or if grout is being pumped at cold temperature, an accelerator may be added to base material. Consult manufacturer before adding an accelerator. Reinject to assure that all voids are properly sealed off.

Adhere to all manufacturers' caution notes appearing in product literature including:

1. The review of drawings of the areas to be repaired.
2. Minimum substrate temperature shall be 40 degrees F; minimum material temperature, 60 degrees F.
3. All equipment in contact with grout shall be dry.
4. The cured material has a 700% - 800% elongation.

C.3 Cleaning

Completely flush pump and clean hoses with approved polyurethane chemical grout pump flush. Use sharp-sided tool such as putty knife or trowel to remove excess material from walls, floors, etc. Wait for material to cure before removing (may be sanded off if necessary).

The uncured polyurethane chemical grout can be cleaned from tools with an approved solvent. The cured polyurethane chemical grout can only be removed mechanically.

Leave finished work and work area in a neat, clean condition without evidence of spillovers onto adjacent areas.

The grout shall not be allowed to spill over onto the surface of the concrete walls or floors. The contractor shall provide suitable canvass or plastic tarps to protect the floors during injection. Mechanical means to remove any spilled grout from the concrete walls and floor must be approved by the engineer.

D Measurement

The department will measure Injected Polyurethane Concrete Crack Sealing 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.0090.4050	Injected Polyurethane Concrete Crack Sealing	LF

Payment is full compensation for furnishing and installing the crack sealer.

194. Joint Repair Special, Item SPV.0090.4070, Concrete Surface Repair Special, Item SPV.0165.4080, Deep Concrete Repair, Item SPV.0165.4090.

A Description

This special provision describes joint, surface, and deep concrete repairs to the existing tunnel, in accordance to the plans and standard spec 501, 502, and 509, as directed by the engineer, and as hereinafter provided.

B (Vacant)

C Construction

Construct in accordance to the applicable methods specified in standard spec 502 and 509, except as modified below.

The engineer shall sound the concrete surface adjacent to all joints, and any other concrete surface that appears visually unsound. As directed by the engineer, remove any deteriorated waterstop, preformed filler, and concrete material to sound concrete, and dispose according to standard spec 509. Replace all removed preformed filler and waterstop with backer rod sized to fit the joint.

Cure the concrete repairs according to standard spec 509 for sufficient time until Covered Tunnel Waterproofing and Exposed Tunnel Waterproofing can be applied, as specified elsewhere in these special provisions.

D Measurement

The department will measure Joint Repair Special in length by the linear foot acceptably completed, measured as the exposed length of any repair adjacent to an existing construction or expansion joint that has a depth less than 6 inches.

The department will measure Concrete Surface Repair Special by the square foot acceptably completed, measured as the exposed surface area following removal that has a depth less than 6 inches.

The department will measure Deep Concrete Repair by the square foot, acceptably completed, measured as the exposed surface area following removal that has a depth equal to or greater than 6 inches.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.4070	Joint Repair Special	LF
SPV.0165.4080	Concrete Surface Repair Special	SF
SPV.0165.4090	Deep Concrete Repair	SF

Payment for Joint Repair Special is full compensation for removing and disposing of deteriorated concrete and expansion joint material, if applicable; for repair or replacement and forming of repaired joints, if applicable; and for forming, furnishing, hauling, placing, curing, and protecting all materials.

Payment for Concrete Surface Repair Special is full compensation for removing and disposing of deteriorated concrete; for cleaning reinforcing steel, if applicable; and for forming, furnishing, hauling, placing, curing, and protecting all materials.

Payment for Deep Concrete Repair is full compensation for completely removing the deteriorated concrete areas; for disposing of waste material; for salvaging and using the existing bar steel reinforcement; and for forming, furnishing, hauling, placing, curing, and protecting all materials.

195. Ductile Iron (DI), Class 55 Water Main, 16-Inch, Item SPV.0090.5000; Ductile Iron (DI), Class 55 Water Main, 8-Inch, Item SPV.0090.5001,

A Description

This work includes providing and installing ductile iron water main at locations indicated in the plans, conforming to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and as hereinafter provided.

B Materials

B.1 General

Ductile iron (DI) piping shall be in accordance to AWWA C150, Class 55. Design pipe joint ends for rubber push-on gasket joints, conforming to AWWA C111.

Cast in or stamp on pipe manufacturer's mark, year of production, and "DI' or "DUCTILE.'

Pipe shall be cement mortar lined and have internal and external bituminous coats.

B.2 Fittings

Fittings shall conform to AWWA C110, centrifugally cast in metal or sand-lined molds. Use of compact fittings conforming to AWWA C153 is acceptable.

In no case shall fitting grade rating be less than adjoining pipe.

Fittings shall be from same manufacturer as pipe.

Nuts and bolts for joints and fittings shall be corrosion resistant steel, NSS Technologies, Inc., Cor-Blue or approved equal.

B.3 Polyethylene Sheeting for Pipe Corrosion Protection
Polyethylene sheeting conforming to ASTM D4976, Type I, Class B, color black, Grade E-1, 1200 psi tensile strength, minimum thickness of 8 mil. Tube diameter or sheet width shall conform to AWWA C105.

Furnish tape for polyethylene sheeting that is 2-inch wide, black tape with rubber adhesive and minimum 9 mil polyethylene backing. Tape shall be 3M™ Preservation Sealing Tape 481 or an approved equal.

B.4 Trench Insulation
Extruded polystyrene board conforming to ASTM C578, Type V, rigid, closed cell type, with integral high density skin, Dow Chemical Company STYROFOAM™ Highload 100 or an approved equal.

Thermal Resistance: Typical 5 year aged value of R-5 per inch of thickness per ASTM C518.

Board Size: 24 x 96 x 2-inch thick. Square edges.

Compressive Strength: Minimum 100 psi per ASTM D1621.

Water Absorption: 0.7 percent by volume maximum per ASTM D2842.

All bedding, cover and backfill materials shall meet City of Wauwatosa Standards and be approved by the City of Wauwatosa.

C Construction
C.1 General
In accordance to Wisconsin Statute 182.0175, "Damage to Transmission Facilities," Excavator, as defined in 182.0175(1)(bm), shall be solely responsible to provide advance notice to “Diggers Hotline, Inc.” (800) 242-8511 not less than three working days prior to commencement of any Excavation, as defined in the statute, required to perform work contained in this Project, and further, Excavator shall comply with all other requirements of this Statute relative to Excavation.

Before beginning excavation of trench, contractor shall uncover stub end of existing water main to which relay is to connect, to permit adjustments in line and grade and verify connection required.

C.2 Installation of Ductile Iron Pipe
Join pipe and fittings by means of a compression type rubber gasket push-on joints conforming with AWWA C111.

Excavation and backfill for buried pipe shall conform to the Standard Specifications for Sewer and Water.

Remove lumped subsoil, boulders, and rock. If rock is encountered, remove to provide a clearance of at least 6 inches below and on each side of pipe, valves, and fittings.

Lay and maintain water mains to lines and grades established in the plans with fittings, valves, and hydrants at required locations.

Trench preparation shall proceed in advance of pipe installation only as far as can be backfilled in the same day.

Contractor shall not deviate from types of excavation indicated in the plans without prior concurrence of engineer except in case of roadways, driveways, and obstructions that may be indicated in the plans as open trench sections.

Place and shape bedding material to pipe, to a minimum depth of three inches under bell and four inches under spigot and compact to 95 percent modified proctor density.

Lower water main, fittings, valves, and hydrants carefully into trench, by means of derrick, ropes, or other suitable tools or equipment, to prevent damage to water main materials and protect coatings and linings.

Lay pipe with bell ends facing direction of laying. When grade exceeds 2 feet of rise per 100 feet of trench, bells shall face upgrade.

Provide holes for bells at each joint but no larger than necessary for joint assembly and assurance that pipe barrel will lie flat on trench bedding.

Trench bedding shall be true and even in order to provide support for full length of pipe barrel, except a slight depression may be provided to allow withdrawal of pipe slings or other lifting tackle.

If pipe laying crew cannot put pipe into trench and in place without getting earth into it, engineer may require placing, before lowering pipe into trench, a heavy, tightly woven, canvas bag of suitable size over each end of pipe and leaving there until connected to adjacent pipe.

Do not place debris, tools, clothing, or other materials in pipe during laying operations.

Assemble joint and bring pipe to correct line and grade as each length of pipe is placed in trench.

Take precautions to prevent foreign materials from entering joint space and carefully check joint recess for foreign material before installing gasket.

Remove lumps of clay, mud, cinders, and similar materials that may have accumulated on surface of pipe during storage or laying and encase pipe in polyethylene sheeting in accordance with AWWA C105.

Secure pipe in place with bedding material, placed by hand or equally careful means, keeping bell end open. Remove pipe and fittings that do not allow sufficient and uniform space for joints and replace with pipe and fittings of proper dimensions to ensure such uniform space.

Upon daily and temporary completion of pipe installation, close open ends of pipe by a water-tight plug or other means approved by engineer. This provision applies during daytime inactivity as well as overnight.

If water is in trench, maintain pipe seal in place until water level is lowered four inches below pipe invert.

Whenever it becomes necessary to lay a main over, under, or around a known obstruction, contractor shall furnish and install required fittings. Laying of such fittings will be paid for at linear foot price for each size of main. No additional compensation will be paid to contractor for any expenses incurred because of such obstruction.

When an unknown underground structure interferes with work to such an extent that an alteration of the plans is required and alteration results in a change in cost to contractor, engineer will issue a written order for such altered work, specifying basis of payment or credit for such altered work.

Keep interior and exterior of pipe clean and free from foreign material before installation. Provide necessary means to wipe, brush, swab, or air blast to remove any foreign material from interior of pipe as instructed by pipe manufacturer and as directed by engineer.

Provide and place approved bedding sand and cover under and above water service to depths indicated in the plans. Provide and install crushed concrete backfill to depths indicated. Compact bedding sand and cover, and crushed concrete backfill to 95% modified proctor density.

C.3 Water Main Pressure and Leakage Testing

Pressure Testing:

After pipe has been laid, subject newly laid pipe or any valved section thereof to a hydrostatic pressure of at least 1.5 times working pressure at point of testing.

Tests pressures shall:

- Not be less than 1.25 times working pressure at highest point along test section.
- Not exceed pipe or thrust restraint design pressures.
- Be of at least 2-hour duration.

- Not vary by more than plus or minus 5 psi for duration of test.

- Not exceed twice rated pressure of valves or hydrants when pressure boundary of test section includes closed gate valves or hydrants. NOTE: Do not operate valves in either direction at differential pressure exceeding rated pressure.

- Not exceed rated pressure of valves when pressure boundary of test section included closed, resilient seated gate valves or butterfly valves.

Slowly fill each valved section of pipe and apply specified test pressure, based on elevation of lowest point of line or section under test and corrected to elevation of test gage, by means of a pump connected to pipe acceptable to engineer.

Do not operate valves in either opening or closing direction at differential pressures above rated pressure.

Before applying specified test pressure, completely expel air from section of pipe under test.

If permanent air vents are not located at all high points, Contractor shall install corporation cocks at such points to expel air as line is filled with water.

After all air has been expelled, close corporation cocks and apply test pressure. Atconclusion of pressure test, remove corporation cocks and plug or leave in place at discretion of City of Wauwatosa.

Carefully examine exposed pipe, fittings, valves, hydrants, and joints during test.

Repair or replace any damaged or defective pipe, fittings, valves, or hydrants that are discovered following pressure test with sound material, and repeat test until it is satisfactory to City of Wauwatosa.

C.4 Leakage Testing
Leakage test may be conducted concurrently with pressure test.

Leakage shall be defined as quantity of water that must be supplied into newly laid pipe, or any valved section thereof, to maintain pressure within 5 psi of specified test pressure after air in pipeline has been expelled and pipe has been filled with water. Leakage shall not be measured by a drop in pressure in a test section over a period of time.

No pipe installation will be accepted if leakage is greater than that determined by following formula:

L = SD times Square Root of P, divided by 133,200

Where L is allowable leakage in gallons per hour; S is length of pipe tested in linear feet; D is nominal diameter of pipe in inches; and P is average test pressure during leakage test in pounds per square inch gage.

When hydrants are in test section, test shall be made against main valve in hydrant.

Acceptance shall be determined on basis of allowable leakage. If any test of laid pipe discloses leakage greater than that specified, contractor shall, at its own expense, locate and make repairs or replacement.

C.5 Flushing and Disinfection

Place calcium hypochlorite at upstream end of first section of pipe, at upstream end of each branch main, in first pipe section past valve, in hydrant leads, and at a minimum 500 foot interval in main.

Place the following amounts of calcium hypochlorite granules at beginning of main and at each 500-foot interval:

Pipe Diameter (Inches)	Calcium Hypochlorite Granules (Ounces)
4	0.5
6	1.0
8	2.0
12	4.0
16 and larger	8.0

Contractor may use tablets if prior approval is obtained from engineer. Procedure shall be as follows:

- Place one 5-gram calcium hypochlorite tablet in each hydrant, hydrant branch, and other appurtenance.
- Place 5-gram calcium hypochlorite tablets in accordance to the following table in each section of pipe.

Pipe Diameter	Length of Pipe Section (feet)				
(Inches)	<13	18	20	30	40
4	1	1	1	1	1
6	1	1	1	2	2
8	1	2	2	3	4
10	2	3	3	4	5
12	3	4	4	6	7
16	4	6	7	10	13

Based on 3.25 grams available chlorine per tablet, any portion of tablet rounded to next higher integer.

Attach tablets to inside and top at each end of newly installed pipe with an NSF 61 approved adhesive such as ITW Redhead A7, or an approved equal.

Do not apply adhesive to tablet except on broad side to be attached to surface of pipe.

If tablets are attached before pipe section is placed in trench, mark their position on section so it can be readily determined that pipe is installed with tablets at top.

When installation is completed, fill main with water at a rate such that water within main will flow at a velocity no greater than one foot per second.

Contractor shall separately meter and pay for water for filling and initial flushing of main.

Contractor shall provide labor and material necessary to transfer water from source to main to be tested. Only local City of WauwatosaWater Utility employees shall operate valves.

Water shall enter main and be tested at low point in system to force entrapped air out at high end through an available hydrant or air release valve.

Close upper end hydrant or valve after air is expelled and chlorinated water discharge is present. Take precautions to assure that entrapped air is eliminated.

Water shall remain in pipe for at least 24 hours or as defined by regulatory requirements. If water temperature is less than 40 degrees F, water shall remain in pipe for at least 48 hours.

Position valves so that strong chlorine solution in main being treated will not flow into water mains in active service.

Water from new mains must successfully pass bacteriological test in accordance to requirements of Wisconsin Department of Natural Resources.

Properly and securely brace and maintain excavation until successful testing, flushing, chlorinating, and sampling of main is completed.

Contractor shall be responsible for protecting any required excavation by means of proper barricades and lanterns during sampling and testing period.

Provide access to main for sampling as directed by engineer. Water Utility will take necessary samples of water and obtain laboratory tests of samples.

D Measurement

The department will measure Ductile Iron (DI), Class 55 Water Main, 16-Inch and Ductile Iron (DI), Class 55 Water Main, 8-Inch by the linear foot, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.5000	Ductile Iron (DI), Class 55 Water Main, 16-Inch	LF
SPV.0090.5001	Ductile Iron (DI), Class 55 Water Main, 8-Inch	LF

Payment is full compensation for furnishing all materials; and for excavating, backfilling, and compacting.

196. Sanitary Sewer Relay 8-Inch; Item SPV. 0090.5002.

A Description

A.1 General

Perform work under these items in accordance 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) 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 relay.

B Materials

B.1 General

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 SDR35. 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 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. Backfill used in this contract for sanitary work shall be Backfill Slurry.

C.2.2 Pipe And Fittings

Except for lateral reconnections, sizes and strength classifications of sanitary sewer pipe to be used in all locations are indicated on the plans. PVC pipe shall conform to ASTM D-3034 SDR35, Type PSM, rubber gasket joints, or ASTM F-789 Type PS-46 for sizes 4" through 15" and F-679 (T-l) 12454 Type PSM rubber gasket joints for sizes 18" through 27".

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 Relay 8-Inch, 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.0090.5002	Sanitary Sewer Relay 8-Inch	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 providing

slurry backfill material; for backfilling; for leakage testing; for providing and maintaining all necessary bypass pumping for sanitary sewer relay; and for cleaning out and restoring the work site.

197. Abandoning Existing 8-Inch and 10-Inch Sanitary Sewer, Item SPV. 0090.5003.

A Description

A.1 General

Perform work under these items in accordance to the details as shown on 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) 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 Standard Specifications for Sewer and Water.

B.2 Cellular Concrete

Provide cellular concrete meeting the following specifications: 1 part cement, 1 part fly ash, 8 parts sand, or an approved equal, and water. Provide cement meeting the requirements of standard spec 501.2.1 for Type 1 Portland Cement. Provide sand meeting the requirements of standard spec 501.2.5.3. Provide water meeting the requirements of standard spec 501.2.4.

C Construction

Bulkhead sewers that are to be abandoned in place with an 8-inch brick or concrete wall.

Fill all sewers with cellular concrete. Remove frame, cover, and manhole to a minimum depth of 3’ below grade. Bulkhead and abandon all existing sewers as shown in the plans.

D Measurement

The department will measure Abandoning Existing 8-Inch and 10-Inch Sanitary Sewer 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.0090.5003	Abandoning Existing 8-Inch and 10-Inch Sanitary Sewer	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.

198. Pipe Underdrain 6-Inch Special, Item SPV.0090.8001.

A Description

This work shall consist of providing necessary subsurface drainage by constructing trenches, placing the required geotextile fabric, installing the designated pipes or drainage devices within, connections, and backfilling the trenches with the specified backfill material in accordance to standard spec 310, 612 and 645, as shown on the plans, and as hereinafter provided

B Materials

B.1 Base Aggregate

All aggregate shall be base aggregate open graded and shall conform to standard spec 310.2.

B.2 Pipe Underdrain

Conform to standard spec 612.2.

B.3 Geotextile Fabric

Geotextile fabric shall consist of Type DF Schedule A and shall conform to standard spec 645.2.4.

C Construction

Conform to standard spec 612.3.

D Measurement

The department will measure Pipe Underdrain 6-Inch Special by the linear foot acceptably completed. The department will measure along the centerline of the pipe, center to center of junctions and fittings.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.8001	Pipe Underdrain 6-inch Special	LF

Payment is full compensation for providing, handling, and placing all materials, including pipe, base aggregate open graded, geotextile fabric Type DF Schedule A, connections, fittings, and caps or plugs; for furnishing all excavating, plowing, and recompacting,

salvaging; disposing of surplus material; and restoring the work site. No additional payment will be made for base aggregate open graded.

199. Storm Sewer Pipe Reinforced Concrete Horizontal Elliptical Class HE-III 77x121-Inch, Item SPV.0090.8002.

A Description
Furnish and install reinforced concrete horizontal elliptical pipe culverts.

B Materials
Conform to standard spec 610.2.

C Construction
Construct in accordance to the plans and standard spec 610.3.

D Measurement
The department will measure Storm Sewer Pipe Reinforced Concrete Horizontal Elliptical Class HE-III 77x121-Inch by the linear foot acceptably completed. The measured quantity equals the number of linear feet of pipe measured along the centerline of the pipe. The department will measure from center to center of drainage Storm Sewer Structure. The department will make no deduction from these measured lengths for intermediate Storm Sewer Structures or 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.0090.8002	Storm Sewer Pipe Reinforced Concrete Horizontal Elliptical Class HE-III 77x121-Inch	LF

Payment will conform to standard spec 610.5.

200. Removing Geodetic Survey Monument 2K17, Item SPV.0105.0001.

A Description
This special provision describes removing the concrete height modernization Geodetic Survey Monument 2K17 located on the north end of railroad tunnel B-40-433 near southbound STH 100 at 595SS+11.51, 30.69’ LT and salvaging the 3.5-inch bronze disc on top of the monument as shown on the plans and in accordance to the pertinent provisions of standard spec 204 and as hereinafter provided. The monument is a bronze disc embedded in concrete in the top of the existing retaining wall. The bronze disc is to be salvaged for department reuse.

B (Vacant)

C Construction
Remove the concrete height modernization geodetic survey monument and salvage the bronze disc and return to the department in accordance to standard spec 204.3.

Notify the Wisconsin Height Modernization staff (866) 568-2852 and Thomas Lipsky, RLS Wisconsin DOT/SE Region-Waukesha Survey Coordinator five working days prior to construction operations that may disturb existing monument, with pertinent questions or to return salvaged bronze disc to the department. Thomas Lipsky can be reached at (262) 548-6737 or (414) 750-1508, or email Thomas.Lipsky@dot.wi.gov.

D Measurement
The department will measure Removing Geodetic Survey Monument 2K17 as a single complete lump sum unit of work, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.0001	Removing Geodetic Survey Monument 2K17	LS

Payment is full compensation for removing concrete geodetic survey monument, proper disposal of all materials, and for salvaging 3.5-inch bronze disc and returning it to the department.

201. Removing Former Hotel Building Structure, Item SPV.0105.0002.

Supplement standard spec 204 with the following:

A Description
Work under this item consists of Removing Former Hotel Building Structure located at 115 N. Mayfair Road and disposing of all debris and resulting materials in accordance with standard spec 204, and as hereinafter provided.

B (Vacant)

C Construction
C.1 General
A summary of the appraisal report for the existing hotel building structure is on file and available for inspection at the Wisconsin Department of Transportation Southeast Region Office Building, 141 NW Barstow Street, Waukesha, WI 53187-0789. A site visit of the Former Hotel Building Structure site is strongly recommended by all perspective bidders and demolition subcontractors.

Prior to the demolition of the Former Hotel Building Structure under this contract, others will remove asbestos containing materials. It is anticipated that asbestos containing materials will be removed by the end of January 2013. The building structural and non-structural components will remain for demolition and removal under this contract.

Conduct removal work in a prudent manner and exercise care to preclude damage to any adjacent building. The contractor is responsible for any damage caused by his operations to adjacent buildings. Keep abutting roads, public places, and private property adjacent to the building being removed in a debris or litter-free condition throughout the removal process.

Removal of the existing building foundation and footings are included in this item.

All materials generated during demolition activities are the property of the contractor. Dispose of unclaimed and removed material as specified for disposing of materials in standard spec 203.3.4. Do not burn building to remove. Comply with Wisconsin Department of Natural Resources (DNR) air pollution control rules per standard spec 201.3.

C.2 Submittals

C.2.1 Site Safety Plan

Prepare a Site-specific Safety Plan for the Former Hotel Building Structure demolition work and maintain copies at the project office. Provide two copies of the Site-specific Safety Plan to the engineer at least two weeks prior to beginning demolition work. A copy of the plan signed by all personnel present at the demolition site shall be submitted at the conclusion of the project.

C.2.2 Dust Control Plan

Prepare a Site-specific Dust Control Plan for the Former Hotel Building Structure demolition as part of the ECIP required under the article Erosion Control. Identify how the contractor intends to implement control and monitoring of air borne particulates from building demolition work.

C.2.3 Noise Control Plan

Prepare a Noise Control Plan for the Former Hotel Building Structure demolition including planned hours of demolition, controls to limit noise from demolition activities, and planned noise monitoring to comply with the requirements under article Public Convenience and Safety.

C.2.4 Demolition Plan

The contractor is responsible for the methods and sequence of demolition, including effects on the overall stability of the building structure being removed. Prior to mobilization to the site, submit the Demolition Plan for review to ascertain compliance with the requirements specified. Include the methods and procedures used to perform demolition and the sequencing and scheduling of demolition, including:

- The name of the contractor's on-site-employee designated in responsible charge of all removal operations.
- Methods of removal, proposed haul route(s) and disposal, the proposed haul route, method of hauling, and proposed destination.
- Acknowledgement that the contractor has visited the site and reviewed the existing structure plans in preparing the removal plan.

Provide two copies of the removal plan and analysis computations to the engineer at least two weeks prior to beginning removal work for review and acceptance.

It is understood that whether or not the engineer concurs in the removal plan as submitted or revised, the contractor will in no way be relieved of the responsibility of providing a safe and controlled removal operation.

C.3 Notice to Department of Natural Resources

Prior to commencement of any demolition activities, notify the Southeast Regional Office of the Wisconsin DNR located at 2300 N. Dr. Martin Luther King Dr., P.O. Box 12436, Milwaukee, WI 53212 Phone (414) 263-8500, at least ten business days in advance of the contractor's intent to raze the Former Hotel Building Structure. In the notice to DNR, include the address and type of building to be razed, the proposed date that the building will be razed, and the name of the licensed or approved landfill where the demolition waste will be disposed. Mail a copy of this notice, within ten days of DNR notification, to the WisDOT SE Region, Attn: Jay Obenberger, PO Box 798, Waukesha, WI 53187-0798.

C.4 Hazardous Materials

C.4.1 Lead Based Paint

Lead Based Paint (LBP) may be present on the steel components of the building structure to be removed under this contract. The contractor is responsible for determining if LBP is present. If LBP is found to be present, develop a protocol for its handling and management. All activities shall be conducted in a Lead Safe manner in accordance with OSHA 29 CFR 1926.62 and other applicable regulations.

C.4.2 Asbestos

It is anticipated that asbestos containing materials will be removed from the existing building structure by the end of January 2013. If asbestos is encountered, immediately cease razing operations on the site and notify the engineer. The department will hire a private consultant to remove any asbestos containing materials that may be encountered.

C.4.3 Underground Fuel Storage Tanks

If tanks are discovered on the site during razing that were not removed as part of or in the absence of an Environmental Site Assessment, immediately cease razing operations on the site and contact the engineer. The department will hire a private consultant to remove the discovered tanks.

C.5 Custody of the Building
Upon written order by the department representative to commence work, the building and surrounding state-owned property shall be under the custody of the contractor. Nothing in this proposal shall be interpreted as setting forth the condition of the building or the appurtenances thereto. Except as otherwise provided herein, it is to be understood that the department accepts no responsibility for the protection of the building and appurtenances against damages sustained either prior to or subsequent to the time of the letting of the work under this contract.

While the building is in the contractor's custody, keep the building in a closed condition. The contractor shall take such measures as are necessary to safeguard the public from damages or injury. Do not remove doors or windows from the building until the actual day of razing, unless all openings are sealed as approved by the engineer. Only the contractor and his subcontractor shall salvage building components. At all times, do not allow the public in the building or on the grounds.

C.6 Building Demolition and Removal
Perform work in accordance with standard spec 204 and as hereinafter provided.

Furnish all labor, equipment, tools, transportation and incidentals necessary for the performance of the work. Secure and pay for all permits that are required for the demolition work.

Prepare site, including the installation and maintenance of all barriers, barricades, warning signs, fencing, and all other items as required for the proper protection of persons on the site, members of the public, and property. Leave no hazard unmarked and unprotected after demolition is complete.

Remove all concrete steps, concrete sidewalks, and concrete slabs from the premises. Remove existing parking lot lights, light poles, and bases. Safely disconnect power to the lights and remove electrical appurtenances.

Notify public utility companies serving the building in sufficient time, before removal operations, to allow them to disconnect and remove their facilities from the building.

Shut off municipal water service lines and sanitary sewer laterals at the curb boxes.

Abandon all water service lines and sanitary sewer laterals in compliance with all ordinances, statutes, regulations, and permit requirements of the municipality in which the building is situated and those of the State of Wisconsin.

Remove heating units, fixtures, and similar appurtenances to the elevation of the basement floor. Remove all furniture, miscellaneous furnishings, miscellaneous appliances, mailboxes, and all other relevant yard improvements and debris.

Until standing walls have been razed, safely brace existing walls at all times to ensure complete safety during the wrecking operations. Excavate as required to remove building structure from the premises.

Break and remove entirely from the site all basement walls, floors and footings. Remove footings up to their bottom elevation above gravel bed or up to elevation 748.00.

Dispose of all non-hazardous demolition waste in a landfill licensed or approved in writing by the Department of Natural Resources and in accordance with NR500, Wisconsin Administrative Code. Failure to properly dispose of solid waste is a violation of State Solid Waste Statutes and Administrative code and is subject to issuance of a citation under Wisconsin Statute 287.81(2)(a).

Remove all material from the premises in a safe manner and in compliance with all applicable laws and ordinances. Do not disturb adjacent property. At the end of each day's work, leave site in a safe and secure condition so that no part of the existing building is in danger of toppling or falling and unauthorized admittance is prohibited.

C.7 Disposal of Material
Supplement standard spec 104.8 with the following:

Clear the entire premises of all decomposable and combustible refuse, debris and materials resulting from the removal of the building. Upon completion of the work, leave the entire premises in a neat condition. Do not deposit or leave decomposable or combustible refuse, debris, or materials resulting from the removal of the buildings on any state-owned lands, or right-of-way of any highways, including any exposed openings resulting from razing activities.

Do not bury materials on site. Remove materials from site as work progresses. Use all reasonable means to divert demolition waste from landfills and facilitate recycle or reuse material generated during demolition.

Provide all waste disposal, including loading, transporting, and disposing of all debris, rubble, or trash that results from Removing Former Hotel Building Structure. Take all materials designated for disposal to a Wisconsin DNR-approved solid waste disposal facility or at contractor’s construction debris disposal site, as appropriate.

C.8 Backfill
Ensure that all exposed openings are free of all refuse and debris.

Backfill exposed openings in accordance with standard spec 204.3.1.2. Compact backfill in accordance with standard spec 207.3.6.2. Furnish backfill meeting the requirements of standard spec 209 for use as backfill material.

C.9 Fencing
After removing the building, furnish and erect suitable fencing around the exposed openings resulting from excavation, to protect and safeguard the public from all hazardous conditions created by the operations. Install the fencing in such a manner to ensure that the public is prevented from falling into any openings. The fence shall be a height of 52 inches, and the posts shall be at least 58-inches high and spaced at a distance no greater than 10 feet apart. Remove the fencing after all open excavations have been backfilled satisfactorily.

D Measurement
The department will measure Removing Former Hotel Building Structure as a single complete lump sum unit of work, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.0002	Removing Former Hotel Building Structure	LS

Payment is full compensation for preparation of all submittals; for all excavating; for all concrete removal; for design and erection of temporary supports, shoring and bracing; for handling, removing, and disposing of components with Lead Based Paint; for building foundation and footing removal; for building removal; for contacting the Wisconsin DNR; for obtaining and paying for all required permits; for notifying utility companies; for disconnecting and abandoning utilities, sewer, and water services; for removing light poles and light foundations as outlined in this specification; for placing and compacting backfill material; for disposing of removed surplus materials including loading, transporting, and unloading; for restoring the work site; for furnishing, installing and removing fencing, barriers, barricades, warning signs, and all other items as required for proper protection; for removing and disposing of heating units, fixtures, and similar appurtenances; and for removing and disposing of all miscellaneous furniture, furnishings, and appliances.

202. Abandon Steam Tunnel, Item SPV.0105.0003.

A Description
This special provision describes abandoning existing WE Energies steam tunnel in place by removing the roof of the tunnel and walls as needed, cutting and capping steam pipes, bulkheading the limits of the 5-foot x 5-foot steam box tunnel 2 feet beyond the proposed back of curb on either side of the roadway with brick or concrete block, and filling it with Backfill Slurry. Also included in this item is the abandonment of a steam manhole. Proper abandonment will be in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest Edition.

B Materials
Furnish Backfill Slurry in accordance to the pertinent requirements of section 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.

C Construction

Clean manhole and tunnel thoroughly. Cut and cap the abandoned steam pipes to 3 feet beyond the proposed back of curb on both sides of the roadway. Plug the existing 5-foot x 5-foot box tunnel with an 8-inch brick or concrete wall on both sides of the roadway, 2' beyond the proposed back of curb. Remove the roof and walls as needed of the manhole and steam box tunnel to a depth of 6-inches below proposed subgrade 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.

D Measurement

The department will measure Abandon Steam Tunnel, as a single complete unit of work, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.0003	Abandon Steam Tunnel	LS

Payment is full compensation for furnishing all materials; for bulkheading and abandoning existing steam box tunnel and manhole; cutting and capping steam pipes; for furnishing and placing Backfill Slurry; excavation required to properly abandon steam box tunnel and manhole; and for disposing of materials.

203. Survey Project 1060-33-70, Item SPV.0105.0010.

A Description

Standard spec 105.6 and 650 are modified to define the requirements for construction staking for this contract.

Replace standard spec 105.6.2 with the following:

The department will not perform any construction staking for this contract. The contractor shall perform all survey required to lay out and construct the work under this contract, subject to engineer's approval.

The survey includes establishing horizontal and vertical position for all aspects of construction including but not limited to storm sewer, subgrade, base, curb, gutter, curb and gutter, pipe culverts, drainage structures, structure layout, all retaining wall layout, pavement, barriers (temporary and permanent), low profile concrete barrier, low profile concrete barrier end sections, overhead signs, street lighting, electrical installations, supplemental control, slope stakes, ponds, stream relocations, traffic signals, ITS, FTMS,

parking lots, paths, utilities, conduit, water main, sanitary sewer, landscaping elements, irrigation system layout, installation of community sensitive design elements, traffic control items, fencing, etc.

The department may choose to perform quality assurance surveys during the project. These quality assurance surveys do not relieve the contractor of the responsibility for performing all survey work required to lay out and construct the work under this contract.

Delete standard spec 650.1.

B (Vacant)

C Construction
Conform to standard spec 650.3 and as modified in this special provision.

Replace standard spec 650.3.3.1 with the following:

Under the Survey Project bid item the contractor may substitute global positioning system (GPS) machine guidance for conventional subgrade staking on all or part of the work. The engineer may require the contractor to revert to conventional subgrade staking methods for all or part of the work at any point during construction if, in the engineer's opinion, the GPS machine guidance is producing unacceptable results.

Replace standard spec 650.3.3.3.4.1 with the following:

The department will provide the contractor staking packet as described in the Construction and Materials Manual (CMM) 7.10 to the contractor. At any time after the contract is awarded the contractor may request available survey and design information. 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:

The contractor shall record all subgrade elevation checks and submit a hard copy to the engineer at the completion of the project.

D Measurement
Replace standard spec 650.4 with the following:

The department will measure Survey Project 1060-33-70 as a single complete lump sum unit of work, acceptably completed.

E Payment
Replace standard spec 650.5 with the following:

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.0010	Survey Project 1060-33-70	LS

Payment is full compensation for performing all survey work required to lay out and construct all work under this contract. No additional payments will be made for restaking due to construction disturbance and knock-outs.

204. Pavement Cleanup Project 1060-33-70, Item SPV.0105.0011.

A Description
This special provision describes cleanup of dust and debris from pavements within and adjacent to the job site.

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.

Vacuum equipment shall have a self-contained particulate collector capable of preventing discharge from the collection bin into the atmosphere.

Use a vacuum-type sweeper as the primary sweeper, except as specified herein or approved by the engineer.

C Construction
C.1 Pavement Cleanup
Keep all pavements, curb lanes, and gutters that are both closed and open to public traffic within the job-site boundaries free of dust and debris generated from any activity under the contract. Keep all pavements, curb lanes and gutters adjacent to the project free of dust and debris that are affected by land disturbing, dust generating activities, as defined in the contractor's dust control implementation plan.

Provide surveillance to identify if material is being tracked from the jobsite. Clean up spillage and material tracked from the project within an hour of occurrence or as directed by the engineer. Perform cleanup operations in a safe manner.

Provide routine sweeping of all pavements, curb lanes, and gutters on local street active haul routes a minimum of once a day as defined in the Dust Control Implementation Plan (DCIP) or as directed by the engineer. This includes STH 100, W. Bluemound Road, W. Wisconsin Avenue, and W. Watertown Plank Road for routine sweeping.

In addition to routine sweeping, conduct sweepings as the engineer directs or approves, to deal with dust problems that might arise during off-work hours or emergencies. Provide the engineer with a contact person available at all times to respond to requests for emergency sweeping. Respond to emergency sweeping requests within 4 hours.

If the vacuum-type sweeper breaks down, a mechanical broom sweeper may be substituted for no more than 24 hours total elapsed time. Repair the vacuum-type sweeper within that 24 hours or substitute a vacuum-type sweeper.

Skid steers with mechanical power brooms may only be utilized on sidewalks and driveways whose pavements will not support the weight of a street sweeper, unless otherwise approved by the engineer.

D Measurement

The department will measure Pavement Cleanup Project 1060-33-70 as a single lump sum unit of work, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.0011	Pavement Cleanup Project 1060-33-70	LS

Payment schedule for this item shall be in accordance to the percentage of contract value earned.

Payment is full compensation for surveillance, mobilization, sweeping, and disposing of materials.

205. Concrete Pavement Joint Layout Project 1060-33-70, Item SPV.0105.0012.

A Description

This special provision describes providing a concrete pavement joint layout design for intersections and marking the location of all joints in the field.

B (Vacant)

C Construction

Plan and locate all points necessary to establish the horizontal position of the transverse and longitudinal joints in the concrete pavement to prevent uncontrolled cracking. Submit a joint layout design to the engineer before paving each intersection. Mark the location of all concrete pavement joints in the field. Follow the plan details for joints in concrete pavements making adjustments as required to fit field conditions.

D Measurement
The department will measure Concrete Pavement Joint Layout Project 1060-33-70 as a single lump sum unit of work 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
SPV.0105.0012	Concrete Pavement Joint Layout Project 1060-33-70	LS

Payment is full compensation for providing the intersection joint layout designs and marking all joints in the field.

The department will adjust pay for crack repairs as specified in standard spec 415.5.3.

206. 60-Inch Headwall and Grate, Item SPV.0105.0210.

A Description
This special provision describes furnishing all materials and labor to excavate, construct, backfill and install all materials associated with the 60-Inch Headwall and Grate including inserts; anchorage; design, fabrication, and erection of galvanized steel grating; and all other appurtenant work shown on the plan.

B Materials
B.1 Structural Backfill
Backfill of headwall material and procedure shall be installed per standard spec 210 Structures Backfill.

B.2 Masonry Anchors
Masonry Anchors shall meet and be installed per standard spec 502 Concrete Bridges.

B.3 Endwall
Endwall materials and construction shall be per standard spec 504 Culverts, Retaining Walls, and Endwalls.

B.4 Structural Steel
Fabricate and install per standard spec 506 Steel Bridges.

B.5 Rubberized Membrane Waterproofing
Rubberized Membrane Waterproofing shall meet and be installed per standard spec 516 Waterproofing.

B.6 Pipe Underdrain 6-inch
Pipe Underdrain 6-inch shall meet and be installed per standard spec 612 Underdrains.

B.7 Steel Grate
Conform to ASTM A36 for structural steel, except for tube and pipe shapes.

Provide bolts, nuts and washers that are hot dip galvanized according ASTM A153, Class C when used to connect steel called for on the drawings or in the specification as hot dip galvanized after fabrication.

Conform to AISC high strength bolting specifications for dimensions and washer requirements of oversize, short slotted, and long slotted holes

B.8 Grate Hot Dip Galvanizing

- Hot dip galvanize after fabrication all structural steel items and their connections permanently exposed to the outside.

- Provide a minimum of 2-ounces per square foot galvanized coating.

- Use cold galvanizing compound for field welded connections.

B.9 Grate Surface Preparation

- Conform to "Steel Storm Sewer Structures Painting Council (SSPC), Volume 2" for all steel to be hot dip galvanized.

- Remove grease, oil and all foreign contaminants by thorough cleaning with an alkaline or organic solvent followed by thorough rinsing in cold water.

- Remove scaling by pickling in diluted sulfuric or hydrochloric acid. Follow pickling by a rinse in warm water and a second rinse in cold water. As an alternative to pickling, the steel may be white metal blast cleaned according to SP5 of the SSPC specifications.

C Construction
C.1 Headwall
All construction shall be per standard specifications listed under materials.

C.2 Steel Grate
C.2.1 Reference Standards
Conform to the following latest edition reference specifications. If provisions of reference standards below and this specification conflict, the more stringent provisions shall govern.

- AISC "Code of Standard Practice for Steel Buildings and Bridges".
- AISC "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings", including the "Commentary" and supplements thereto as issued.
- AISC "Specifications for Structural Joints using ASTM A325 or A490 Bolts" approved by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation.

- AISC “Manual of Steel Construction, Allowable Stress Design”.
- AISC Manual, “Detailing for Steel Construction”.
- American Welding Society (AWS) “Structural Welding Code”.
- AWS “Standard Quantification Procedure”.
- Steel Storm Sewer Structures Painting Council “Steel Storm Sewer Structures Painting Manual”, Volumes 1 and 2.

C.2.2 Qualification of Welding Work

Qualify welding processes and welding operators in accordance to AWS “Standard Qualification Procedure”.

C.2.3 Shop Drawings

a) Shop drawings shall be prepared, verified and stamped by a professional engineer registered in the State of Wisconsin. Submit two sets of shop drawings for engineer’s review two weeks prior to start fabrication.

b) Show clearly on shop drawings information for fabrication, erection and coating as per AISC specifications. Show clearly the size, type of bolts, and welds using AWS weld symbols.

c) The contractor is responsible for all errors of detailing, fabrication and for the correct fitting of the structural members.

d) The omission from the shop drawings of any material required for construction of safety grate shall not relieve contractor of the responsibility of furnishing and installing such materials, even though the shop drawings may have been and reviewed and approved by the engineer.

C.2.4 Fabrication

a) Weld all shop connections.

b) Provide all necessary bearing plates for reaction of beams and columns, connections, stiffeners, and gussets.

c) Fabricate with natural camber for all steel beams located above the horizontal centerline between the end connections. Straighten members distorted by shop welding procedures.

d) Conform to AISC specification and ASTM 36 for member and assembly tolerances.

C.2.5 Material Storage

Protect stored materials from dirt and foreign matters.

C.2.6 Erection

a) Erect all structural steel plumb, level and to accurate elevations. Unless otherwise shown on drawings, follow AISC Code of Standard Practices, Section 7.11 "Framing Tolerances". Provide all necessary required temporary bracing.

b) Field connections shall be welded or bolted.

c) Field correction of fabrication by gas cutting shall not be permitted without prior approval of the engineer.

C.2.7 Welding

a) Conform to AWA 1.1 "Structural Welding Code – Steel".

b) All welding shall be done by skilled, experienced, qualified and state certified operators.

C.2.8 Field Painting

- All field welded galvanized connections shall have welds protected with cold galvanizing compound.

- Apply no paint on surfaces upon which there is frost or moisture.

D Measurement

The department will measure 60-Inch Headwall and Grate as a single complete lump sum unit of work, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.0210	60-Inch Headwall and Grate	LS

Payment is full compensation for excavating and preparing the foundation; for furnishing and installing all materials shown in the plans including steel grate, welding, concrete, reinforcement, dowel bars, sealants, fillers, and forms; for furnishing all joints as shown in the plans; for heating materials; for galvanizing; for applying prime coats; for painting; for placing membrane; for disposing of excess material; for placing all reinforcement as shown in the plans; for placing, finishing, protecting, and curing concrete; for designing, fabricating, and erecting the steel grate; for shop drawings; for storing materials; and for cleaning out and restoring the work site.

207. Maintenance of Lighting Systems, Item SPV.0105.1005.

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. The contractor shall be responsible

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. It remains the contractor's responsibility to visit the site to confirm and ascertain the exact condition of the electrical equipment and systems to be maintained.

B (Vacant)

C Construction

C.1 Existing Lighting Systems

Existing lighting systems shall be 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, but whether indicated or not, it remains the contractor's responsibility to 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. Extent of maintenance of existing lighting system shall be as follows:

Partial Maintenance: Unless otherwise indicated, 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, the contractor shall only maintain the affected circuits. Isolate the affected circuits by means of in-line waterproof fuse holders as specified elsewhere and as approved by the engineer.

Full Maintenance: 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, the contractor shall maintain the entire controller and all associated circuits.

C.2 Proposed Lighting Systems

Proposed lighting systems shall be defined as any temporary or final lighting systems or part of a lighting system which is to be constructed under this contract.

The contractor shall be fully responsible for maintenance of all items installed under this contract. Maintenance shall include, 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. Include the potential cost of replacing or repairing any malfunctioning or damaged equipment in the bid price of this item; it will not be paid for separately.

C.3 Maintenance Operations

The contractor's responsibility shall include the maintenance of 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, the contractor shall promptly clear the lighting unit and circuit discontinuity and restore the system to service.

Responsibilities shall also include weekly night-time patrol of the lighting system, with patrol reports filed immediately with the engineer and with deficiencies corrected within 24 hours of the patrol. Patrol reports shall be presented on standard forms as designated by the engineer. Uncorrected deficiencies may be designated by the engineer as necessitating emergency repairs as described elsewhere herein.

The following chart lists the maximum response, service restoration, and permanent repair time the contractor will be allowed to perform corrective action on specific lighting system equipment.

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	n/a	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	n/a
Circuit out – Cable trouble	1 hour	24 hours	21 Calendar days
Outage of 3 or more successive lights	1 hour	4 hours	n/a
Outage of 75% of lights on one tower	1 hour	4 hours	n/a
Outage of light nearest RR crossing approach, Islands and gores	1 hour	4 hours	n/a
Outage (single or multiple) found on night outage survey	n/a	n/a	7 Calendar days

C.4 Lighting

Serve Response Time: The amount of time from the initial notification to the contractor until a patrolman physically arrives at the location.

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.)

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. All costs associated to repair this uncompleted work shall be the responsibility of the contractor. 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.

Repair damage caused by the contractor's operations at no additional cost to the contract.

C.5 Operation of Lighting

The lighting shall be operational every night, dusk to dawn. Duplicate lighting systems (such as temporary lighting and proposed new lighting) shall not be operated simultaneously. Do not keep lighting systems in operation during long daytime periods. Demonstrate to the satisfaction of the engineer that the lighting system is fully operational prior to submitting a pay request. Failure to do so will be grounds for denying the pay request.

D Measurement

The department will measure Maintenance of Lighting Systems as a single lump sum unit of work, 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.0105.1005	Maintenance of Lighting Systems	LS

Payment is full compensation for Maintenance of Lighting Systems.

208. Temporary Traffic Camera System (Bluemound Road), Item SPV.0105.2000, Temporary Traffic Camera System (Watertown Plank Road), Item SPV.0105.2001.

A Description

This special provision describes installing a temporary closed circuit television camera system for monitoring traffic conditions.

B Materials

Materials will be a combination of contractor furnished materials and department-furnished materials.

Contractor furnished materials will include:

1. Wood utility pole to provide for a camera elevation of 35-feet above the adjacent roadway
    a. The wood pole shall be western red cedar in accordance to ANSI standards 05.1. Pressure treatment shall be 5% pentachlorophenol with a minimum of 8 pounds per cubic foot net retention of the oil-borne preservative. Pole shall be shaved the entire length.
2. Electrical power conductors meeting the requirements of standard spec 655.
3. Electrical power service and connection.
    a. Electrical service may be shared with the temporary traffic signal power service or provided separately.
4. Outdoor rated Category 6 network cable to connect CCTV camera to 5.8 GHz Ethernet bridge.
5. Metallic conduit and fittings

Department-furnished materials will include:

- CCTV camera
- CCTV camera power supply and enclosure
- Ethernet video encoder
- 5.8GHz Ethernet bridge

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.

C Construction

Installation and integration of the temporary traffic camera system must be completed prior to removal of the respective existing permanent CCTV camera site.

The contractor may choose whether to preassemble the pole, camera, Ethernet bridge, power supply, and power service conduit and conductors or whether to install the pole and then mount the other devices.

Install the wood pole appropriately to provide for a completed elevation of the CCTV camera of 35-feet above the roadway.

The exact location of the system may be decided by the contractor but may not exceed 20-feet from the point of tangent of the curb radius along either of the streets in the intersection. The exact location of the system must also function on a wireless Ethernet bridge to the adjacent connection point as shown on the plans.

Install the Ethernet video encoder into the camera supply enclosure and install onto the wood pole. Install and connect all cabling necessary to make the system functional.

Direct the Ethernet bridge to adjacent Ethernet bridges as shown on the plans and integrate into the communications system.

If relocating the system is necessary for construction staging and operations, relocating the system and reconnecting it to the adjacent Ethernet bridge communications shall be the responsibility of the contractor.

D Measurement

The department will measure Temporary Traffic Camera System (Location) as a single complete lump sum unit of work, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.2000	Temporary Traffic Camera System (Bluemound Road)	LS
SPV.0105.2001	Temporary Traffic Camera System (Watertown Plank Road)	LS

Payment is full compensation for installing the pole mounted cabinet; for making all connections and conduit/wire entrances; and for furnishing all testing.

209. Work Zone Travel Information System, Item SPV.0105.2002.

A Description

This special provision describes furnishing, installing, integrating, calibrating, making functional, and maintaining a work zone travel information system to provide traffic condition information for the project work zone to motorists entering the work zone. The information provided will include an accurate drive time through the work zone. The system must be in operation 24 hours per day, seven days per week, during the construction period.

This system will include three solar powered trailer mounted (3) portable dynamic message signs; a system, including detectors and processing system, to measure travel time through the work zone in real-time; communications among any traffic detection devices, the processor, and the portable dynamic message signs.

B Materials

Detection

Traffic detection for the system may be determined by the contractor but must be non-intrusive to the roadway pavement.

Possible systems include, but are not limited to microwave radar vehicle detectors, video vehicle detectors, Bluetooth and/or wi-fi chip identification and tracking, and probe vehicle tracking systems.

Quantity and location of the detectors shall also be determined by the contractor. ITS infrastructure that exists or is proposed within the project may be used to power the detectors for the system; however, the ITS communications system will not be made available. If ITS infrastructure is to be used for power, it is up the contractor to coordinate the power for the system detectors as ITS infrastructure is removed, modified, and built new.

Traffic signal deployments and street lighting deployments may not be used for power or for communications.

Travel time measurement system

The system must generate and display travel times 24 hours per day, 7 days per week for the duration of project.

The system must update travel times at least every 5 minutes and travel times must be based on a rolling average of data.

Reported travel times must be accurate within 5 minutes or 20%. The engineer will randomly drive the work zone and compare actual measured travel time to displayed travel time. In the event of a measured travel time exceeding 20% difference, the results will be relayed to the contractor and a resolution proposed and enacted by the contractor.

The travel time measurement system must have the capability to generate different sign messages depending on detected travel time through the work zone. For example, in periods of short travel times the message displayed may only include a general statement of low congestion level to be expected and not display an actual travel time. During periods of expected higher than normal congestion, the message will likely include travel time.

Signing

Furnish 3 portable solar powered dynamic message signs. The signs must consist of a full-matrix LED display and be capable of displaying a minimum of 3 rows of 8 characters each spaced between 3-inches and 4-1/2-inches apart. Characters shall be 17 inches high and 11 inches wide. The maximum sign width shall be 11 feet 6 inches. The sign shall have the ability to display a 2 phase message with user definable display periods.

The sign controller shall have a memory system to store sign settings to prevent power failure from causing loss of sign settings.

The signs shall have ambient light controlled continuous dimming with a minimum range of 100 percent to 40 percent for the sign display.

The sign controller local interface shall not be permanently installed in the sign. Local control shall be through a hand-held, or otherwise removable, interfaces system to prevent unauthorized local control of the sign.

The solar power generation and batteries system for the signs shall be designed to operate 24 hours per day, 7 days per week in Wauwatosa, WI for the months included in the project.

The communications system to the signs shall be certified to be compliant with all pertinent F.C.C. regulations.

C Construction

The system must be submitted, approved, deployed, calibrated, and made operational before any traffic control devices are deployed for the project.

Submit for approval a written and illustrated plan for the system a minimum of four weeks prior to the planned deployment of the system. Include material cut sheets for detectors, communications devices, portable signs, and any controllers.

The plan must show detailed locations of necessary devices such as vehicle detectors.

The portable changeable message signs will be located as shown on the plans and as directed by the engineer. The message to be used during different travel time scenarios will be supplied by the engineer.

Also submit a plan describing the algorithm by which the work zone travel times will be calculated.

Relocate the portable dynamic message signs, detectors, and other devices as necessary due to traffic control changes, staging changes, or work zone length changes.

D Measurement
The department will measure Work Zone Travel Information System as a single complete lump sum unit of work, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.2002	Work zone Travel Information System	LS

Payment is full compensation for installing, configuring, calibrating, making functional, and maintaining the Work zone Travel Information System; and for testing.

210. Remove Traffic Signals IH 94 WB Ramps and STH 100, Item SPV.0105.3018; USH 18 and STH 100, Item SPV.0105.3019; STH 100 and W. Potter Road / W. Research Drive, Item SPV.0105.3020; STH 100 and W. Watertown Plank Road, Item SPV.0105.3021; Watertown Plank Road and Innovation Drive, Item SPV.0105.3022.

A Description
This special provision describes removing existing traffic signals at the department owned intersections of STH 100 with IH 94 westbound Ramps, USH 18, W. Potter Road / W. Research Drive, W. Watertown Plank Road and the City of Wauwatosa owned intersection of Watertown Plank Road and Innovation Drive in accordance to the pertinent provisions of standard spec 204 and as hereinafter provided. 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.

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 or City of Wauwatosa.

Department Owned Traffic Signals
Notify the department's Electrical Field Unit at (414) 266-1170 at least five working days prior to the removal of the traffic signals. Complete the removal work as soon as possible following shut down of this equipment.

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, mast 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. Dispose of the underground signal cable, internal wires and street lighting cable off the state right-of-way. Deliver the remaining materials to the West Allis Electrical Service Facility at 935 South 60th Street, West Allis, WI. Contact the department's Electrical Field Unit at (414) 266-1170 at least five working days prior to delivery to make arrangements.

DOT forces will remove the signal cabinet from the footing. The signal cabinet and associated signal cabinet equipment will be removed from the site by DOT forces and will remain the property of the department.

City of Wauwatosa Owned Traffic Signals

Notify the City of Wauwatosa Public Works Department at (414) 471-8422 at least five working days prior to the removal of the traffic signals. Complete the removal work as soon as possible following shut down of this equipment.

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, mast arms, luminaires, wiring / cabling and traffic signal mounting devices from each signal standard, arm or pole. Ensure that access handhole 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. 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 Remove Traffic Signals (Location) as a single lump sum unit of work for each intersection, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.3018	Remove Traffic Signals IH 94 WB Ramps and STH 100	LS
SPV.0105.3019	Remove Traffic Signals USH 18 and STH 100	LS
SPV.0105.3020	Remove Traffic Signals STH 100 and W. Potter Road / W. Research Drive	LS
SPV.0105.3021	Remove Traffic Signals STH 100 and W. Watertown Plank Road	LS
SPV.0105.3022	Remove Traffic Signals Watertown Plank Road and Innovation Drive	LS

Payment is full compensation for removing and disassembling traffic signals; for scrapping of some materials; for disposing of scrap material; and for delivering the requested materials to the West Allis Electrical Service Facility or the City of Wauwatosa Electrical Yard.

211. Remove Loop Detector Wire and Lead-in Cable IH 94 WB Ramps and STH 100, Item SPV.0105.3024; USH 18 and STH 100, Item SPV.0105.3025; STH 100 and W. Potter Road/Research Drive/, Item SPV.0105.3026; STH 100 and Watertown Plank Road, Item SPV.0105.3027.

A Description

This special provision describes removing loop detector wire and lead-in cable at the department owned intersections of STH 100 with IH 94 westbound Ramps, USH 18, W. Potter Road / W. Research Drive, and W. Watertown Plank Road. Removal shall be in accordance to standard spec 204, as shown in the plans, and as hereinafter provided.

B (Vacant)

C Construction

Notify the department's Electrical Field Unit at (414) 266-1170 at least five working days prior to the removal of the loop detector wire and lead-in cable. WisDOT forces will disconnect the lead-in cable from the cabinet equipment.

Remove and dispose of detector lead-in cable and loop wire for abandoned loops. Detector lead-in cable and loop wire shall become property of the contractor and shall be disposed off of the right-of-way.

D Measurement

The department will measure Remove Loop Detector Wire and Lead-in Cable as a single lump sum unit of work for each intersection, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.3024	Remove Loop Detector Wire and Lead-in Cable IH 94 WB Ramps and STH 100	LS
SPV.0105.3025	Remove Loop Detector Wire and Lead-in Cable USH 18 and STH 100	LS
SPV.0105.3026	Remove Loop Detector Wire and Lead-in Cable STH 100 and W. Potter Road / W. Research Drive	LS
SPV.0105.3027	Remove Loop Detector Wire and Lead-in Cable STH 100 and Watertown Plank Road	LS

Payment is full compensation for removing loop detector wire and lead-in cable; for scrapping of some materials; and for disposing of scrap material.

212. Transporting Signal and Lighting Materials USH 18 and STH 100, Item SPV.0105.3029; STH 100 and W. Wisconsin Avenue, Item SPV.0105.3030; STH 100 and W. Potter Road / W. Research Drive, Item SPV.0105.3031; STH 100 and W. Watertown Plank Road, Item SPV.0105.3032.

A Description

This special provision describes the transporting of department furnished materials for traffic signals and intersection lighting.

B Materials

Transport materials furnished by the department including: monotube arms and luminaire arms (to be installed on monotube assemblies).

Pick up the department furnished materials at the department's Electrical Shop located at 935 South 60th Street, West Allis. Notify the department's Electrical Field Unit at (414) 266-1170 and make arrangements for picking up the department furnished materials at least five working days prior to picking the materials up.

C (Vacant)

D Measurement

The department will measure Transporting Signal and Lighting Materials as a single lump sum unit of work, 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.0105.3029	Transporting Signal and Lighting Materials USH 18 and STH 100	LS
SPV.0105.3030	Transporting Signal and Lighting Materials STH 100 and W. Wisconsin Avenue	LS
SPV.0105.3031	Transporting Signal and Lighting Materials STH 100 and W. Potter Road / W. Research Drive	LS
SPV.0105.3032	Transporting Signal and Lighting Materials STH 100 and W. Watertown Plank Road	LS

Payment is full compensation for transporting the monotube poles, monotube arms and luminaire arms (to be installed on monotubes). Installation of these materials is included under a separate pay item.

213. Install Vendor Supplied Traffic Signal Cabinet USH 18 and STH 100, Item SPV.0105.3033; STH 100 and W. Wisconsin Avenue, Item SPV.0105.3034; STH 100 and W. Potter Road / W. Research Drive, Item SPV.0105.3035; STH 100 and W. Watertown Plank Road, Item SPV.0105.3036.

A Description

This special provision describes the installing of the vendor furnished Traffic Signal Cabinet for traffic signals.

B Materials

Use materials furnished by the department including: the traffic signal controller and the traffic signal cabinet. The Southeast Region signal engineer will provide the project plans and specifications to the department's Traffic Signal Cabinet vendor a minimum of 70 calendar days prior to scheduled field installation. The department will provide notification at the preconstruction meeting of the Traffic Signal Cabinet vendor and provide the vendor's contact information.

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 up the materials.

The department shall not be responsible for project delays and costs due to the delays of delivery by the vendor or by the failure of the Traffic Signal Cabinet to pass acceptance testing.

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.

Append standard spec 651.3.3 (6) with the following:

Operate the completed traffic signal installation for 30 days consecutively, using the specified signal sequence(s) and all special functions, such as preemption as the plans show or as specified by the engineer.

C Construction

Perform work in accordance 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 project engineer at least five working days prior to the time of the requested inspection. The department's Region Electrical personnel will perform the inspection.

D Measurement

The department will measure Install Vendor Supplied Traffic Signal Cabinet (Location) as a single lump sum unit of work, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.3033	Install Vendor Supplied Traffic Signal Cabinet USH 18 and STH 100	LS
SPV.0105.3034	Install Vendor Supplied Traffic Signal Cabinet STH 100 and W. Wisconsin Avenue	LS
SPV.0105.3035	Install Vendor Supplied Traffic Signal Cabinet STH 100 and W. Potter Road / W. Research Drive	LS
SPV.0105.3036	Install Vendor Supplied Traffic Signal Cabinet STH 100 and W. Watertown Plank Road	LS

Payment is full compensation for installing and testing 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.

214. Transporting and Installing State Furnished Autoscope Video Detection System USH 18 and STH 100, Item SPV.0105.3037; STH 100 and W. Wisconsin Avenue, Item SPV.0105.3038; STH 100 and W. Potter Road, Item SPV.0105.3039; STH 100 and W. Watertown Plank Road, Item SPV.0105.3040.

A Description

This special provision describes the transporting and installing of department furnished Traffic Signal Autoscope Video Detection System on Monotubes and Luminaire arms.

B Materials

The contractor shall pick up all the department furnished Autoscope Video Detection System for all state maintained traffic signals for the project at the department's Electrical Shop located at 935 South 60th Street, West Allis. Notify the department's Electrical field unit at (414) 266-1170 to make arrangements for picking up the department furnished materials at least five working days prior to material pick-up.

C Construction

Install the Traffic Signal Terra Power Cable 18/3, the camera manufacturer's connector cable whip, pole/arm mounting bracket, extension arm (if required) and camera as shown on the plans (the final determination of location will be made by the department's electrical personnel to ensure best line of sight). The department Electrical Field Unit

(EFU) shall install State-furnished Autoscope video detection equipment in the traffic signal control cabinet.

Install the Traffic Signal Terra Power Cable 18/3 to run continuously (without splices) from the traffic signal cabinet plus an additional 10 feet to the handhole or base. Leave 10 feet of cable in each pull box. Install the camera manufacturer's connector cable whip from the camera to the handhole or base.

Mark each end of the lead appropriately to indicate the equipment label (i.e. VID1, VID2, etc.). Splice, solder and shrink wrap the Terra power cable to the camera manufacturer's cable whip. Allow 3 feet of slack on each cable.

Notify department's Electrical Shop at (414) 266-1170 upon completion of the Monotube and Luminaire arm installation of the Traffic Signal Terra Power Cable 18/3, cable whip and camera at each intersection. Camera programming will be performed by the department with assistance from the vendor and the contractor when operation of the permanent signal begins.

D Measurement

The department will measure Transporting and Installing State Furnished Autoscope Video Detection System (Location) as a single lump sum unit of work for each intersection, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.3037	Transporting and Installing State Furnished Autoscope Video Detection System USH 18 and STH 100	LS
SPV.0105.3038	Transporting and Installing State Furnished Autoscope Video Detection System STH 100 and W. Wisconsin Avenue	LS
SPV.0105.3039	Transporting and Installing State Furnished Autoscope Video Detection System STH 100 and W. Potter Road	LS
SPV.0105.3040	Transporting and Installing State Furnished Autoscope Video Detection System STH 100 and W. Watertown Plank Road	LS

Payment is full compensation for transporting and installing the Intersection Autoscope Video Detection System, Traffic Signal Terra Power Cable 18/3, cable whips, mounting hardware, cameras and programming.

215. EVP Detector Head Installation USH 18 and STH 100, Item SPV.0105.3041; STH 100 and W. Wisconsin Avenue, Item SPV.0105.3042; STH 100 and W. Potter Road / W. Research Drive, Item SPV.0105.3043; STH 100 and W. Watertown Plank Road, Item SPV.0105.3044.

A Description

This special provision describes the transporting and installing of department furnished Emergency Vehicle Preemption (EVP) Detector Heads and EVP Detector Head Mounting Brackets at the intersections of STH 100 with USH 18, W. Wisconsin Avenue, W. Potter Road / W. Research Drive, and W. Watertown Plank Road.

B Materials

Use materials furnished by the department including: Emergency Vehicle Preemption (EVP) Detector Heads and EVP Detector Head Mounting Brackets.

Pick up the department furnished materials at the department's Electrical Shop located at 935 South 60th Street, West Allis. Notify the department's Electrical Field Unit at (414) 266-1170 and make arrangements for picking up the department furnished materials at least five working days prior to picking the materials up.

C Construction

Install the EVP detector heads and EVP detector head mounting brackets as shown on the plans. The department will determine the exact location to ensure that the installation does not create a sight obstruction. The department will terminate the EVP cable ends and install the discriminators and card rack in the cabinet.

Notify the department's Electrical shop at (414) 266-1170 upon completion of the installation of the Emergency Vehicle Preemption (EVP) Detector Heads and EVP Detector Head Mounting Brackets.

D Measurement

The department will measure EVP Detector Head Installation as a single lump sum unit of work, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.3041	EVP Detector Head Installation USH 18 and STH 100	LS
SPV.0105.3042	EVP Detector Head Installation STH 100 and W. Wisconsin Avenue	LS
SPV.0105.3043	EVP Detector Head Installation STH 100 and W. Potter Road / W. Research Drive	LS
SPV.0105.3044	EVP Detector Head Installation STH 100 and W. Watertown Plank Road	LS

Payment is full compensation for transporting and installing of department furnished Emergency Vehicle Preemption (EVP) Detector Heads and EVP Detector head Mounting Brackets.

216. Install Fiber Optic Communications in Cabinet USH 18 and STH 100, Item SPV.0105.3045; STH 100 and W. Wisconsin Avenue, Item SPV.0105.3046; STH 100 and W. Potter Road / W. Research Drive, Item SPV.0105.3047; STH 100 and W. Watertown Plank Road, Item SPV.0105.3048.

A Description

This special provision describes installing fiber optic communications equipment in traffic signal cabinets.

B Materials

The department will furnish pre-terminated fiber optic patch panels and managed Ethernet switches. The materials will be provided with the traffic signal cabinet. The patch panels will have pre-terminated fiber optic cable pigtails. Provide two each 1-meter lengths of ST-ST single mode fiber jumper (2 fibers per jumper) from the patch panel to the Ethernet switch. Provide a 1-meter length of CAT-5e cable from the Ethernet switch to the controller. Provide a 1-meter length of CAT-5e cable from the Ethernet switch to the Interface Panel. CAT-5e patch cords shall have factory pre-terminated RJ45 / 8P8C connectors on both ends per TIA/EIA T568B. Provide all patch panel, Ethernet switch, and Interface Panel attachment hardware.

Provide a 14 AWG XLP insulated, stranded, copper, 600 volt AC locate wire through the conduit run from the communication vault to the traffic signal cabinet. Connect the locate wire by using a silicone filled wire nut at each pull box, vault or other access point. Alternatively, use a single wire through the access points, leaving a 6 foot coil in each pull box, vault or other access point for splicing. All material under this item shall meet the requirements of standard spec 655.

C Construction

Install the patch panel and Ethernet switch on the side of the traffic signal cabinet opposite the electrical service at a location as approved by the engineer. With approval by the engineer, the Ethernet switch may be placed on a shelf near the patch panel. Install the pre-terminated fiber optic cable in conduit from the patch panel to the communication vault as specified in standard spec 678.3.1. Fiber optic cable ends shall be covered securely to protect open ends during installation in raceways. Leave the remainder of the fiber optic cable coiled in the communication vault.

Install the fiber jumpers and CAT-5e cable and provide a communications link from the communication vault to the controller. Install the CAT5-e cable from the Interface Panel to the Ethernet switch.

Connect the locate wire by using a wire nut at each access point. Alternatively, use a single wire through the access points.

D Measurement

The department will measure Install Fiber Optic Communications in Cabinet (Location) as a single lump sum unit of work, 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.0105.3045	Install Fiber Optic Communications in Cabinet USH 18 and STH 100	LS
SPV.0105.3046	Install Fiber Optic Communications in Cabinet STH 100 and W. Wisconsin Avenue	LS
SPV.0105.3047	Install Fiber Optic Communications in Cabinet STH 100 and W. Potter Road / W. Research Drive	LS
SPV.0105.3048	Install Fiber Optic Communications in Cabinet STH 100 and W. Watertown Plank Road	LS

Payment is full compensation for installing pre-terminated patch panels, Ethernet switches, and fiber optic cable in conduit; and for furnishing and installing attachment hardware, fiber jumpers, CAT-5e cable, and locate wire.

217. Temporary EVP System USH 18 and STH 100, Item SPV.0105.3051; STH 100 and W. Wisconsin Avenue, Item SPV.0105.3052; STH 100 and W. Potter Road / W. Research Drive, Item SPV.0105.3053; STH 100 and W. Watertown Plank Road, Item SPV.0105.3054; USH 45 SB On Ramp and W. North Avenue, Item SPV.0105.3056.

A Description

This special provision describes furnishing, installing, and maintaining temporary EVP systems at the temporary signalized intersection as shown in the plans.

B Materials

Furnish an emergency vehicle preemption system compatible with the City of Wauwatosa's system and users. Contact the City of Wauwatosa Public Works, Joe Kroll, 11100 W. Walnut Road, Wauwatosa, WI, (414) 471-8422, jkroll@wauwatosa.net, for information regarding the equipment needs and operational requirements of the emergency vehicle preemption system.

C Construction

The Temporary EVP System, as shown in the temporary traffic signal plans or as directed by the engineer, shall be complete in place, tested, and in full operation during each stage and sub-stage of construction.

Install the temporary vehicle detection system as shown in the plans and according to the manufacturer's recommendations. It shall be the contractor's responsibility to determine a suitable location for the temporary EVP detectors for each stage and sub-stage of construction. Detectors may be mounted on the temporary traffic signal span wire or wood poles. It shall be the contractor's responsibility to relocate the temporary EVP detectors to a suitable location if construction activities and/or construction staging changes impede the detector operation. Arrange for testing of equipment prior to acceptance of the installation for each construction stage.

All cables associated with the temporary vehicle detection system shall be routed to the cabinet. Each lead shall be appropriately marked as to which EVP channel it is associated.

Periodic adjustment and/or moving of the temporary EVP detectors may be required due to changes in traffic control, staging, or other construction operations.

Ensure that the temporary EVP system stays in clean working order. Periodic cleaning of the equipment may be required due to dirt and dust build-up.

Provide WisDOT records of all EVP settings used during construction.

D Measurement

The department will measure Temporary EVP System (Location), as a single complete lump sum unit of work per intersection, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.3051	Temporary EVP System USH 18 and STH 100	LS
SPV.0105.3052	Temporary EVP System STH 100 and W. Wisconsin Avenue	LS
SPV.0105.3053	Temporary EVP System STH 100 and W. Potter Road / W. Research Drive	LS
SPV.0105.3054	Temporary EVP System STH 100 and W. Watertown Plank Road	LS
SPV.0105.3056	Temporary EVP System USH 45 southbound On Ramp and W. North Avenue	LS

Payment is full compensation for furnishing and installing all required equipment, materials, and supplies; for maintaining and changing the EVP detectors to match the plans, traffic control, and construction staging; for relocating the temporary EVP detectors due to construction activities, if required; for testing the EVP system for each stage and sub-stage of construction; for periodically cleaning all temporary EVP detectors; and for cleaning up and properly disposing of waste.

218. Temporary EVP System IH 94 WB Ramps and STH 100 Left in Place, Item SPV.0105.3050; Watertown Plank Road and Innovation Drive Left in Place, Item SPV.0105.3055.

A Description

This special provision describes furnishing, installing, and maintaining temporary EVP systems at the temporary signalized intersection as shown in the plans.

B Materials

Furnish an emergency vehicle preemption system compatible with the City of Wauwatosa's system and users. Contact the City of Wauwatosa Public Works, Joe Kroll, 11100 W. Walnut Road, Wauwatosa, WI, (414) 471-8422, jkroll@wauwatosa.net, for information regarding the equipment needs and operational requirements of the emergency vehicle preemption system.

IH 94 westbound Ramps and STH 100

Provide all necessary equipment for the Temporary EVP System. All materials shall become property of the contractor for Project 1060-33-75 at the completion of this project. The contractor for the 1060-33-75 project shall assume all maintenance and operational responsibilities of the temporary EVP system upon completion and transfer. The contractor shall provide all maintenance records related to maintenance performed on the temporary EVP system to the engineer prior to surrendering the temporary traffic signals.

Watertown Plank Road and Innovation Drive

Provide all necessary equipment for the Temporary EVP System. All materials shall become property of the contractor for Project 1060-33-72 at the completion of this project. The contractor for the 1060-33-72 project shall assume all maintenance and operational responsibilities of the temporary EVP system upon completion and transfer. The contractor shall provide all maintenance records related to maintenance performed on the temporary EVP system to the engineer prior to surrendering the temporary traffic signals.

C Construction

The Temporary EVP System, as shown in the temporary traffic signal plans or as directed by the engineer, shall be complete in place, tested, and in full operation during each stage and sub-stage of construction.

Install the temporary vehicle detection system as shown in the plans and according to the manufacturer's recommendations. It shall be the contractor's responsibility to determine a suitable location for the temporary EVP detectors for each stage and sub-stage of construction. Detectors may be mounted on the temporary traffic signal span wire or wood poles. It shall be the contractor's responsibility to relocate the temporary EVP detectors to a suitable location if construction activities and/or construction staging changes impede the detector operation. Arrange for testing of equipment prior to acceptance of the installation for each construction stage.

All cables associated with the temporary vehicle detection system shall be routed to the cabinet. Each lead shall be appropriately marked as to which EVP channel it is associated.

Periodic adjustment and/or moving of the temporary EVP detectors may be required due to changes in traffic control, staging, or other construction operations.

Ensure that the temporary EVP system stays in clean working order. Periodic cleaning of the equipment may be required due to dirt and dust build-up.

Provide WisDOT records of all EVP settings used during construction.

D Measurement

The department will measure Temporary EVP System (Location) Left in Place, as a single complete lump sum unit of work per intersection, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.3050	Temporary EVP System IH 94 WB Ramps and STH 100 Left in Place	LS
SPV.0105.3055	Temporary EVP System Watertown Plank Road and Innovation Drive Left in Place	LS

Payment is full compensation for furnishing and installing all required equipment, materials, and supplies; for maintaining and changing the EVP detectors to match the plans, traffic control, and construction staging; for relocating the temporary EVP detectors due to construction activities, if required; for testing the EVP system for each stage and sub-stage of construction; for periodically cleaning all temporary EVP detectors; for transferring ownership of the temporary EVP system to the contractor for Project 1060-33-72 or Project 1060-33-75; and for cleaning up and properly disposing of waste.

219. Fire Department Flasher System, Item SPV.0105.3057.

A Description

This special provision consists of designing, furnishing, and installing a fire department flasher system to be located at the City of Wauwatosa fire station located at 10525 W. Watertown Plank Road, Wauwatosa, WI. When activated, the system shall flash the warning beacons at the fire department driveway and preempt the temporary traffic signals at the intersection of W. Watertown Plank Road and Innovation Drive. Push buttons shall be located in the building for the following emergency routes:

Eastbound Route
When Button-1 is depressed, the warning beacons at the fire department drive shall go into flash and the traffic signals at the intersection of W. Watertown Plank Road and Innovation Drive shall be preempted.

The traffic signals at the intersection of W. Watertown Plank Road and Innovation Drive shall stop all traffic on Innovation Drive; stop westbound traffic on W. Watertown Plank Road, and give right-of-way to emergency vehicles eastbound on W. Watertown Plank Road.

The traffic signals at the intersection of W. Watertown Plank Road and USH 45 shall be preempted by a timed signal sent from an east pointing emitter located on the temporary traffic signal at the intersection of W. Watertown Plank Road and Innovation Drive.

Westbound Route
When Button-2 is depressed, the warning beacons at the fire department drive shall go into flash and the traffic signals at the intersection of W. Watertown Plank Road and Innovation Drive shall be preempted with the same program as the eastbound route (Button-1).

The traffic signals at the intersection of STH 100 (N. Mayfair Road) and W. Watertown Plank Road shall be preempted by a timed signal sent from a west pointing emitter located on the temporary traffic signal at the intersection of W. Watertown Plank Road and Innovation Drive.

B Materials
B1. Wireless Activated Flashing LED Beacon
Furnish a solar powered and wirelessly controlled LED Beacon assembly. The assembly includes the following items:

1. Solar panel
   a. The solar panel shall be up to 13.5”x15” in size and provide up to 13.5 watts peak total output.
   b. The Solar panel shall be mounted to an aluminum plate and bracket at an angle of 45°- 60° to provide maximum output.
   c. All fasteners used shall be anti-vandal.
   d. All solar panel connectors shall conform to Ingress Protection, IP-67 rating, dust proof, and protected from temporary immersion in water up to 1 meter deep for 30 minutes. Connectors shall be Deutsch DTM series.

2. LED Beacon
   a. The signal beacon will consist of the head, amber lens, visor, signal closure cap, and mounting hardware for a 4.5” OD aluminum pole. The LED lens will be a 3-12VDC 12” amber LED beacon using AllnGaP technology.
   b. The head will be a one piece polycarbonate shell with the polycarbonate door using stainless steel hinge pins. Thumbscrews will hold the door against the body.

c. The visor shall be a one piece polycarbonate unit which shall be attached at four points to the head door.

3. Control Circuit

The control circuit shall have the capability of independently flashing up to two independent outputs. The LED light output and duty cycle shall be programmable.

The flashing output shall be 50 to 60 flashes per minute with a 100 – 500 millisecond duration on time. The output shall reach the output current as programmed for the duration of the pulse.

The control circuit shall automatically adjust LED output for maximum visibility for both day and night time operations. The day and night time mode will automatically be determined by solar panel charge input.

The control circuit shall be potted in an epoxy resin housing to be waterproof and housed in a 2 3/8" aluminum tube.

4. Battery
   a. Battery packs shall be 4.8 Volt 14000mAH Nickel Metal Hydride (NiMH).
   b. All batteries shall be sealed in a plastic film to provide moisture and corrosion resistance.
   c. All batteries shall operate between the temperatures of -40ºC and +80ºC.

5. Wireless Radio
   a. Radio control shall operate on 900mhz frequency hopping spread spectrum network
   b. Radio shall integrate with communication of LED beacon control circuit to activate beacons from pushbutton input.
   c. All radio systems shall operate from 3.6 vdc to 15vdc.

6. Traffic Signal Standard
   a. Materials shall be in accordance to standard spec 657.2.2.4.

7. Pedestal Base

Materials shall be in accordance to standard spec 657.2.2.5.

8. Concrete Base Type 1
   a. Materials shall be in accordance to standard spec 654.2.1.

9. Emergency Vehicle Caution System Controls and Components

   a. The Emergency Vehicle Caution System will include wireless connection to a Master Location. The components will include a radio receiver with antenna, and an adjustable time countdown timer that removes power from the flashing beacons once the preset time has elapsed. This time must be programmable by Software only.

b. The components will connect to the Master location where a multiple contact closure radio will relay the Control from the Fire House

c. The Emergency Vehicle Caution System will operate as follows: when a vehicle is preparing to leave the station, the activation device (push button on a wall mounted transmitter) will be operated. The Multiple Contact Radio is furnished under a different Pay Item. The wireless signal will be sent to the receiver which causes the Beacon to flash. This time may be set from 1 second to 99 minutes. Once the timer has counted down the preset time the flasher will stop.

B2. Spread Spectrum Radio Antenna 8.5dB Gain Yagi

Furnish a Yagi spread spectrum radio antenna and cable. The spread spectrum radio antenna includes the following items:

1. Spread Spectrum Radio Antenna 8.5 dB Gain Yagi
   The antenna will be complete with mast. Provide mast brackets and U-bolts to hold the antenna to the mast. Mast brackets must be recommended by the antenna manufacturer. Provide a pigtail for connection to the antenna cable. Provide lag screws for mounting to a wood pole, or stainless steel bands for mounting to a steel pole or sign structure.

2. Spread Spectrum Radio Antenna Cable
   Provide a 1/2-inch spread spectrum radio antenna cable of sufficient length to reach the radio or power divider from the antenna. Provide connectors and terminate the cable at each end. On wood poles, enclose the entire length of the cable in rigid metallic conduit. At steel poles and sign structures, run the cable inside the pole, protecting the section between the cabinet and pole with flexible metallic conduit. If it is not practical to run the antenna inside the sign structure, then enclose the entire length of the cable in rigid and flexible metallic conduit. Use connectors matching those on the radio and antenna.

B3. Contact Closure Radio Transceiver Pole or Shelf Mount

Each Contact Closure Radio Transceiver shall meet or exceed the following requirements:

1. Shelf Mount Unit - General
   a. -40 C to +80 C operating environment
   b. 95% non condensing humidity
   c. Nominal dimensions 5”W by 2”H by 8.5”D
   d. 6-30 VDC or 120 VAC (max 40W)
   e. <100mA standby power consumption
   f. <125mA active power consumption
   g. Programmable with ControlPAK software.

2. Pole Mount Unit - General
   a. -40 C to +80 C operating environment
   b. 95% non condensing humidity
   c. Nominal dimensions 11”W by 13”H by 5”D
   d. 6-30 VDC or 120 VAC (max 40W)
   e. <100mA standby power consumption
   f. <125mA active power consumption
   g. 2 banding brackets for mounting to pole
   h. Programmable with ControlPAK software.

3. Shelf and Pole Mount Units – Radio Transceiver
   a. Frequency Range 902-928 MHz (License free)
   b. Output Power variable from 1mW to 1 Watt
   c. Meet FCC Part 15.247 requirements
   d. Software Programmable (with radio configuration, spectrum analyzer, remote diagnostics and configuration for input/output mapping
   e. 62 available hop patterns
   f. 139 RF channels
   g. 200 KHz RF channel spacing
   h. 16 Bit-CRC error checking
   i. Forward Error Correction
   j. 32 bit encryption
   k. -110dBm @10^-6 BER receiver sensitivity
   l. 152dBm system gain

4. Shelf and Pole Mount Units – Input/Output Connections and Configuration
   a. Minimum of eight (8) inputs and outputs
   b. Point to Point, Point to Multipoint, Multipoint to Point, and Multipoint to Multipoint Configurations
   c. Network Repeater Mode
   d. Connector for External Antenna
   e. RJ12 programming port
   f. Direct toggle switch TTL, CMOS or 0-24 VDC for low voltage inputs, and terminal strip connector
   g. Direct 12-VAC/DC true activated high voltage inputs, and terminal strip connector
   h. Indicators for status and power, input, and output

5. Shelf and Pole Mount Units – Lightning Surge Protector
   a. Frequency Range: DC-l.5GHz
   b. VSWR: 1.2:1 Max. to 1000 MHz
   c. Power Capacity: 500 Watts @ 900 MHz
   d. Insertion Loss: Less than .05 dB
   e. Slow rising DC Breakdown Voltages: 500 VDC

f. Breakdown Voltage at 5 KV/Sec: 2000 V
g. Maximum Impulse Current at 8x20 uSec 500 Amps: 5000Amps
h. Impulse Life 10x1000 uSec 500 Amps: 500 occurrences min.
i. Insulation resistance at 100 VDC: 100 megohms
j. Connectors: Female "N"

B4. Solar Power System for Wireless Vehicle Detector System

Furnish and install a solar power system to power a remote wireless non-intrusive vehicle detector and spread spectrum radio system drawing 4 Watts of continuous power, all components of which will operate at 12VDC power.

The system shall be contractor designed to operate 24 hours per day, 7 days per week, 365 days per year. The system shall be designed to operate with a probability of failure of 0.05% or less in the worst month of the year, in the worst county in Wisconsin with 9 days of functional autonomy. Design calculations shall be submitted along with bids and shall be reviewed and approved prior to ordering materials.

The system shall include a cabinet, solar power arrays, batteries, mounting hardware, and solar power controller. The specific requirements of each component of the solar power system are described below.

1. Cabinet
   a. The cabinet shall be manufactured of 0.125" sheet aluminum. Nominal cabinet dimensions shall be 26.25" H x 15.5" W x 14.75" D. The cabinet shall be a two (2) compartment type, the bottom compartment shall have a neoprene gasket seal so as to prevent battery gases from seeping into the top compartment. The cabinet shall have wire screened insect proof louvers on each side of both compartments for ventilation. The louvers shall be designed to not allow any rain to enter the cabinet. On the bottom of the cabinet there shall be two screened insect proof drain holes.
   b. The door shall be a single unit with a continuous piano hinge riveted to the door and the cabinet. The door shall incorporate a neoprene gasket which, when closed, forms a snug weather tight seal. The door lock shall be a standard police lock, reinforced with a steel plate.
   c. Each cabinet shall be equipped with the necessary rigid top and bottom mount for a 4 inch ID pole with 4.5 inch OD pole clamps. All necessary hardware for proper mounting shall be included.

2. Control Panel
   a. The control panel containing the electronics shall be mounted in the top compartment of the cabinet using bolts with wing nuts for quick and easy removal.
   b. The solar panels, load, and battery shall be fused for short circuit protection and ease of system maintenance.

c. The solar charge controller shall control battery charging through pulse width, modulated, temperature compensating, constant charging algorithm. The solar charge controller will have both a low voltage disconnect (LVD) of 11.4 VDC and a high voltage disconnect (HVD) of 15.5 VDC. A liquid crystal display (LCD) of battery voltage, solar array current, and load current will be available with the solar charge controller. In addition, colored LEDs will display battery state. A green LED will indicate full charge, amber LED will indicate half charge, and a flashing red LED will indicate low charge. A solid glowing red LED will indicate the load has been disconnected. A separate green LED will indicate the battery is being charged.
d. The solar charge controller will have a load disconnect pushbutton. When the load is disconnected the button will glow red.
e. The solar charge controller will be capable of operating in a temperature range of -40 degrees C and +85 degrees C.
f. Wire terminations to the solar charge controller shall be accomplished via Euro style terminations.

3. Solar Panel
   a. The solar panel will be high efficiency, single crystal silicon solar cells that are laminated to glass with layers of ethylene vinyl acetate (EVA). The panel will be self-cleaning, impact resistant, highly transmissive, tempered glass superstate. The panel module frame will be made of extruded, polymer coated aluminum alloy or similar approved construction. The panel module junction box will be a UV resistant, weatherproof wire termination system which handles #14 AWG - #8 AWG wiring. The minimum wattage for the system shall be determined by the supplier, with design calculations submitted with the bid.

4. Solar Panel Mount
   a. The solar panel mounting system shall consist entirely of non-corrosive materials, including aluminum brackets and zinc plated hardware. The mounting system shall be a fixed angle of 60º, shall mount to a tapered pole with a nominal diameter of 4-inches, and shall be designed for minimum of 30 pound per square foot.

5. Battery
   a. The battery(ies) shall be type 31 AGM maintenance-free, deep cycle, 12 volt DC battery. It/they will contain valve regulation with a self discharge rate of 1% per month or less (at 68 degrees F).

B5. EVP Emitters

Use existing EVP emitters salvaged from the existing traffic signal at the intersection of W. Watertown Plank Road and Innovation Drive. Furnish the appropriate EVP emitter cable if the existing cable is of insufficient length. No splices are allowed from the EVP emitter to the temporary traffic signal cabinet.

C Construction
Construction shall be in accordance with standard spec 651, 652, 6554, 655, 657, 658, and 661 and in accordance to the manufacturer's specifications and instructions.

The contractor shall reuse the existing wall box located in the fire station. Existing conduit raceways in the building shall be reused. All electrical components shall be UL-Listed. Electrical components shall be field installed by a licensed electrician and approved by the local electrical inspector.

Work within the building is subject to the requirements of the NEC and must be performed by a licensed electrical contractor. Contractors performing this electrical work must have an electrical license issued by the City of Wauwatosa Department of Electrical Inspection and must also obtain a permit from the City of Wauwatosa Building Department.

C1. Wireless Activated Flashing LED Beacon
Construction of the Concrete Base Type 1 for the wireless activated flashing LED beacon shall be in accordance to standard spec 654. Construction of the pedestal base and traffic signal standard for the wireless activated flashing LED beacon shall be in accordance to standard spec 657. All other components shall be installed in accordance to the manufacturer's specifications and instructions.

C2. Spread Spectrum Radio Antenna 8.5dB Gain Yagi
Install a Yagi spread spectrum radio antenna and cable as shown on the plans.

1. Spread Spectrum Radio Antenna 8.5 dB Gain Yagi
    a. Connect the antenna drop cable to the antenna. The connection shall be fully sealed using methods and materials recommended by the radio manufacturer. Install the antenna so that it does not block the view of any equipment mounted on the same pole.

2. Spread Spectrum Radio Antenna Cable
    a. The cable must enter the cabinet through the bottom or side. Do not violate the minimum bend radius of the cable, which is 5-inches.
    b. Make the antenna cable shield electrically and mechanically secure to form a direct DC ground path. The antenna shield shall remain at the same electrical potential as the antenna mounting mast.

C3. Contact Closure Radio Transceiver Pole or Shelf Mount
Install the Contact Closure Radio Transceiver (Mount) in accordance to the manufacturer's specifications and instructions as shown on the plans.

C4. Solar Power System for Wireless Vehicle Detector System
Install the Solar Power System for Wireless Vehicle Detector System in accordance to the manufacturer's specifications and instructions as shown on the plans.

C5. EVP Emitters

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 or City of Wauwatosa.

Remove, salvage, and reinstall the EVP emitters, cable, and any other equipment associated with the EVP emitters on the temporary traffic signal and in the temporary traffic signal cabinet. Connect the emitters to the appropriate cabinet components.

C6. System Integrator

The fire department flasher system integrator shall provide assistance and expertise to the contractor in the areas of equipment installation, operation, integration with existing equipment, and testing. The fire department flasher system integrator is responsible for ensuring all equipment installed operates as the plans and specifications show.

The system integrator shall be responsible for making any necessary programming changes as well as manage the installation and testing of the system. The preemption timing plan is included with the temporary traffic signal timings. The representative shall be available at the project site for consultation and system adjustments until the system is tested and accepted.

Complete all necessary testing to ensure that the fire department flasher system operates as the plans and specifications show.

D Measurement

The department will measure Fire Department Flasher System, furnished, installed, and completely operational, as a single complete lump sum unit of work, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.3057	Fire Department Flasher System	LS

Payment is full compensation for furnishing and installing all required equipment, materials, and supplies; for designing the fire department flasher system; for removing and reinstalling all EVP emitter equipment; for removing and installing the new equipment in the building; for all wiring and splicing; for programming and testing the system; for all permits and licenses; and for cleaning up and properly disposing of waste.

220. Dewatering for Detention Basin Construction, Item SPV.0105.8002.

A General

This special provision describes dewatering for detention basin construction, including control of water during excavation and clay lining construction. Excavation and clay patch lining construction are covered elsewhere in the contract documents.

A.1 Submittals

Discharge Permits

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

Submit to the department for approval the water control plan at least 30 days prior to installation of water control systems. Resubmit as appropriate if the system or any part thereof is modified during installation or operation.

Should requirements of any permit be different than requirements herein, the more stringent requirements shall control.

Water control plan shall as a minimum, include:

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; 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. The submittal shall include design calculations demonstrating adequacy of proposed water control or isolation systems and their components. The contractor shall provide manufacturer's literature describing installation, operation, and maintenance procedures for all components of the water control system.
c) Design calculations demonstrating 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.

If system is modified during installation or operation, revise or amend and resubmit Water Control Plan.

Quality Control Submittals

During construction, submit pumping rate measurements, water level readings taken at construction phase piezometers and groundwater quality data.

A.2 Control of Water

General

This section addresses the provisions for controlling, handling, disposing and treating groundwater and surface water, including contaminated groundwater that may be encountered in detention basin excavations, as required for performance of the work; maintaining the control of water facilities, including maintenance items such as the disposal of sludge from settling detention basins and treatment plants; and work necessary to repair or replace property damaged due to groundwater disturbance.

General dewatering and lowering of the groundwater table for the purpose of stabilization of the detention basin excavation surface will be permitted for detention basin construction.

The contractor is responsible for designing, furnishing, installing and maintaining dewatering system that accomplishes continuous control of water at all times during the course of construction, and shall provide adequate backup systems to accomplish control of water. The method of control, handling, and disposal of groundwater and surface water shall be by whatever means are necessary and in conformance with this section to obtain satisfactory working conditions and to maintain the progress of the work.

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 his 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.

A.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. Water from excavations shall be discharged into the nearest sanitary sewer, in compliance with all applicable codes and regulations. Discharge into storm sewers, open waterways, or on open ground is prohibited.

In the event that contaminated waters are encountered, the contractor is required to notify the department prior to discharging contaminated water into the sanitary sewer system. The contractor may be required to provide laboratory test results documenting contaminant concentrations.

B Materials

The contractor is responsible to determine materials required to meet these dewatering specifications. The piezometer and observation well materials are listed below.

B.1 Filter Pack
Filter pack shall be clean natural silica sand; graded such that all of the material passes the No. 4 sieve and is retained on the No. 30 sieve.

B.2 Filter Pack Seal
Filter pack seal shall be clean natural silica sand; graded such that all of the material passes the No. 10 sieve and is retained on the No. 40 sieve.

B.3 Bentonite Seal
Bentonite pellets used to form bentonite seals shall be 3/8-inch diameter compressed pellets made from high swelling montmorillonite.

B.4 Piezometers and Observation Wells (PZ)
Riser pipe for piezometers and observation wells shall consist of schedule 40 or thicker PVC pipe with flush threaded couplings. All PVC pipe shall have a nominal diameter of 2 inches. A PVC cap for the riser shall be provided. Sensing tips shall consist of 2-inch ID factory-slotted PVC threaded pipe, with 0.02-inch size openings, 60 inches in length.

C Construction
C.1 General
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 section to obtain satisfactory working conditions and to maintain the progress of the work. Water to be controlled includes groundwater, contaminated groundwater; surface water (precipitation and run-off); and wastewater from combined or separated sewers or related facilities.

Obtain all permits required from Wisconsin Department of Natural Resources, Milwaukee Metropolitan Sewerage District, the City of Milwaukee and any other agencies for installation and operation of water control systems and discharging of collected water into water courses, water bodies, sewers or the ground.

Perform the work 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. Modify the water control system at your 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.2 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 so that they do not cause erosion on or off the site. Control surface runoff to prevent entry of surface water into excavations and to prevent erosion on or off the site. Remove drainage systems when no longer needed.

C.3 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 specifications. 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 measures 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-site materials (development of lost ground), or loosening or softening of subgrade soils within excavations.

The water control methods shall be of such capacity that they will lower and maintain the free water and piezometric levels, to an elevation at least 2 feet below all earth slopes, detention basin bottoms and excavation surfaces including the base of excavation required for placement of the clay liner thickness. 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 detention basin construction can be performed without adverse effects of water on the facility being constructed, including hydrostatic uplift pressures. If soil stratification is such that 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 there is no loss of ground by erosion or piping of fines with seepage and no instability of slopes due to seepage. Control water during periods when excavation and installing slope underdrains, clay patches and as such other times as is necessary for efficient and safe execution of the work.

Should water enter the excavation in amounts that could adversely affect the performance of the work or that has the potential to cause loss or damage to adjacent property or structures, take immediate steps to control 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.4 Monitoring of Groundwater Levels

Monitor groundwater levels as necessary to evaluate the sufficiency of the control of water system. Monitor groundwater levels in piezometers. A system of construction piezometers is required to monitor free water surface elevations and piezometric elevations 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 two per pond excavation location shall be installed with the dewatering system at locations and depths proposed by the contractor and approved by the department's representative. At least one piezometer shall be placed at the edge of the planned pond between the pond and the closest building/structure.

Piezometer materials and installation shall conform to the requirements herein. Determination of baseline water levels and monitoring of water levels by the engineer and contractor shall be in accordance to this article.

C.5 Installing Piezometers and Observation Wells

Drill, sample and log borings in soil drilled for the purpose of installing piezometers and observation wells as specified herein. Use 2 ½ foot soil sampling intervals with an SPT sampler. Drill borings using 4-inch minimum inside diameter casing and water. Drill the borings so as not to damage adjacent utilities. If use of drilling fluid is necessary to stabilize the borehole, use a biodegradable organic polymeric drilling fluid. Perform a standard penetration test at 2 ½ foot depth intervals.

Install the sensing tip, riser pipe, filter pack, filter pack seal, and annular space seal as determined by contractor’s engineer. The engineer will determine the depth of the sensing zone for each piezometer installed based upon observations of retained soil samples. Make pipe joints secure and watertight. Withdraw the drill casing in small increments as the backfill materials are placed, so that collapse of the borehole does not occur. Do not rotate casing during withdrawal.

Place filter pack material slowly so that bridging does not occur in the boring and to prevent the instrument from being lifted as the casing is withdrawn. Use a measuring rod or similar device to measure the height of the filter pack to ensure that the filter pack is installed over the proper depth interval. Carefully raise and lower the measuring rod while the filter pack is installed, to prevent bridging and to tamp the filter pack in place.

Place a filter pack seal above the filter pack. Place the filter pack seal in a similar manner as for filter pack material. Place a bentonite seal above the filter pack seal.

Place the annular space seal by tremie grouting. Place the grout in such a manner as to not disturb the integrity of the filter pack and seal.

For observation wells, the annular space seal shall consist of crushed bentonite pellets, or powdered bentonite, and shall be hydrated with water. The bentonite seal specified herein to be installed above the filter pack seal may be eliminated in this case.

Grout for the annular space seal for piezometers shall consist of a bentonite to cement ratio of 0.15/1 by weight, with sufficient water to allow pumping. Mix bentonite and water first.

Provide the top of each riser pipe with a cap in which an air vent hole 1/8 inch in diameter has been drilled. The cap shall be easy to remove.

Develop each installation a minimum of 24 hours after completion. Airlift water from the riser pipe by injecting compressed air through a small tube inserted 3 to 5 feet above the top of the sensing tip. Take care not to inject air directly into the sensing tip. Continue development until the water becomes clear and, in the opinion of the engineer, the material soil filter has been developed. Perform a rising head sensitivity test.

The contractor shall 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) These piezometer readings shall be recorded on an approved form and reported to the engineer within 24 hours after they are obtained.

C.6 Dewatering Wells

Obtain a site-specific dewatering discharge or construction site storm water discharge permit if the WDNR has specific concerns that are not addressed by other permits that might otherwise apply.

Obtain a WDNR permit for operation of any well or well system that has a combined pumping capacity of 70 gallons per minute or more (a high capacity extraction system). For purposes of permitting, a well is defined as any opening made in the ground where the depth of the opening is greater than its largest surface dimension and extends more than 10 feet below ground surface. The permit will require that wells be constructed, operated, and abandoned in accordance to Chapter NR 812, Wis. Adm. Code.

Comply with WDNR regulations regarding disposal of contaminated groundwater in the event that contaminated waters are encountered. 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.

Keep dewatering from wells to the minimum necessary for execution of the work. Obtain any additional geotechnical information necessary for design of a dewatering well system, including performing pump tests, grain size analyses, groundwater chemical analyses, and subsurface investigations. Design and operate wells so as to prevent removal of fine soils with seepage through backpack material and screens. Provide means by which water discharge from each well can be measured and flow rates adjusted. Construct and operate wells in accordance to WDNR requirements, including obtaining permits, as required.

The wells shall be designed, installed and operated in a manner that will preclude removal of materials from the foundation 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 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 sand and replace them if necessary. All sediment content tests shall be performed in the presence of the engineer. Sediment content test results shall be furnished to the department within 24 hours.

Monitor the rate of discharge from each well on a daily basis with an accuracy of at least 2 percent of the flow and make records available to the engineer on a weekly basis or as requested. Abandon dewatering wells as specified in standard spec 204.3.3.3 and in accordance to NR 812 Wis. Adm. Code, whichever is more stringent.

C.7 Ground Loss From Removal or Disturbance of Groundwater

Immediately 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.

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.8 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 detention basins, on-site treatment plant, or other means selected by the contractor. Design the treatment systems for the maximum discharge rates consistent with the means and methods selected by the contractor. Treatment systems shall be capable of expansion if greater capacity becomes necessary during the course of the work. Provide to the engineer 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 City of Wauwatosa Erosion Control Ordinance and the Wisconsin

Construction Site Best Management Practices Handbook, latest revision. 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.

Remove suspended solids from water discharged from excavations, sufficient to preclude sediment deposition in the receiving sewer.

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 detention basins, treatment facilities, and the like. Dispose of sediments and residues in accordance to applicable regulations.

C.9 Abandonment of Piezometers

At the conclusion of detention basin construction, abandon the piezometers installed during construction in accordance to NR 812 Wis. Adm. Code.

D Measurement

The department will measure Dewatering for Detention Basin Construction as a single complete lump sum unit of work, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.8002	Dewatering for Detention Basin Construction	LS

Payment is full compensation for providing submittals, obtaining permits, furnishing materials, installation, dewatering, testing, protection, maintenance, replacement or repair of damaged instruments, installations or adjacent structures, obtaining data readings, and abandonment.

221. Concrete Sidewalk 5-Inch Special, Item SPV.0165.0010.

A Description

This special provision describes placing colored concrete. Placement, forming, and aggregate of the concrete shall be in accordance to the pertinent requirements of standard spec 415, 416 and 501, in accordance to the details as shown on the plans, and as hereinafter provided.

B Materials

At least 15 working days prior to the start of colored concrete installation supply one 2-foot x 2-foot panel sample of the colored concrete. The final color and finish is to be approved by the City of Wauwatosa, Mr. William Wehrley, (414) 479-8929, prior to placement of any colored concrete in the field.

The accepted sample shall be the standard of finish for all colored concrete work within the project.

The concrete shall be grade A2 or grade A-FA as specified in standard spec 501. All colored concrete shall originate from the same batch plant.

C Construction

Concrete shall be placed by installers experienced with colored, broom finished concrete.

Concrete sidewalk shall match the visual appearance of the approved sample. Concrete sidewalk not conforming to the color and finish of the approved sample shall be replaced at the contractor's expense.

C.1 Color Admixture

Use integral color admixture material specifically designed for coloring concrete.
Blend admix at plant per manufacturers specifications to achieve the indicated color. Color admixtures manufacturer and colors include:

Solomon Color – Brick 417
Schofield System – Quarry Red C-32
Davis Colors – Brick Red 160

Or approved equal

C.2 Finish

Finish shall be a medium brushed (broom) finish with a 6-inch smooth troweled finish as shown in the plans.

D Measurement

The department will measure Concrete Sidewalk 5-Inch Special in area by the square foot placed, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0165.0010	Concrete Sidewalk 5-Inch Special	SF

Payment is full compensation for installation of colored concrete; excavating and preparing the foundation; providing all materials, including concrete, and expansion joints; placing, finishing, protecting and curing concrete; and for preparing sample panels.

222. Fixed Message Sign Special, Item SPV.0165.0011.

A Description

This special provision describes providing, erecting, maintaining, and removing special temporary fixed message signs.

B Materials

Use materials in accordance to standard spec 643 except as follows: Fixed Message Sign Special shall contain black lettering on a white background. The contractor shall affix the Zoo Interchange project logo on the sign as detailed in the plan.

C Construction

Construct Fixed Message Sign Special in accordance to standard spec 643. Incorporate the Zoo Interchange project logo onto the sign as shown in the plan.

Contact Joshua LeVeque, WisDOT Project Manager, 141 NW Barstow Street, Waukesha WI 53187, (262) 548-8797, for the logo template.

D Measurement

The department will measure Fixed Message Sign Special by the square foot, acceptably completed, measured as the area of the sign 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.0165.0011	Fixed Message Sign Special	SF

Payment is full compensation for providing all materials; for the manufacture and assembly of the sign; including all messages and logos; and for hauling, handling, installing, and removing the signs, including posts, fasteners and necessary hardware and vertical supports.

223. Fixed Message Sign Left In Place, Item SPV.0165.0012.

A Description
This special provision describes furnishing, installing, and maintaining Fixed Message Sign Left In Place as shown on the plans.

Fixed Message Sign Left In Place becomes property of the department after final acceptance by the engineer.

B Materials
Use materials in accordance to the pertinent provisions of standard spec 643.2.9 and as hereinafter provided.

C Construction
Perform work in accordance to the pertinent provisions of standard spec 643.3.8, as shown on the plans, and as hereinafter provided.

D Measurement
The department will measure Fixed Message Sign Left In Place by square foot area of the sign face acceptably completed, and left in place.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0165.0012	Fixed Message Sign Left In Place	SF

Payment is full compensation for providing all materials; for the manufacture and assembly of the sign; including all messages; and for hauling, handling, installing, and maintaining the signs, including posts, fasteners and necessary hardware and vertical supports.

224. Retaining Wall Soldier Pile, Item SPV.0165.0210.

A Description
Work under this item consists of furnishing and constructing Retaining Wall Soldier Pile at the locations shown on the plans. Perform the work in accordance to pertinent parts of the standard specifications, the plans, and these special provisions.

B Materials
B.1 Concrete
Use materials that conform to concrete masonry as specified in standard spec 501.

B.2 Timber lagging
Use materials that conform to treated lumber as specified in standard spec 507. 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. Provide a certificate of compliance if the timber is treated with a preservative.

B.3 Steel Reinforcement
Use materials that conform to standard spec 505.

B.3 Soldier Pile
Use materials that conform to standard spec 506.

C Construction
Before placing concrete masonry give the engineer sufficient notice to allow inspection of the predrilled holes, soldier piles, and casting preparations. No more than 3 inches of standing water is permitted in the bottom of the drilled hole prior to beginning solider pile installation and immediately prior to placing concrete masonry in the hole around the solider pile. If necessary, place up to 2 feet of concrete at the bottom of the shaft to assist in aligning the soldier pile. Block or clamp the soldier pile in place at the ground surface before placing concrete.

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 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 measure Retaining Wall Soldier Pile by the exposed square 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. 0165.0210	Retaining Wall Soldier Pile	SF

Payment for Retaining Wall Soldier Pile is full compensation for furnishing all materials including shear studs; for excavation; for furnishing, placing, and compacting backfill; for excavation around existing utilities; for placing, finishing, curing, protecting concrete masonry soldier pile footings, and heating; for furnishing and installation of soldier piles; and for furnishing, framing, installing, and treating if required for the timber lagging.

225. Retaining Wall Addition, Item SPV.0165.0211.

A Description

Work under this item consists of furnishing and constructing Retaining Wall Addition at the location shown on the plans. Perform the work in accordance to pertinent parts of the standard specifications, the plans, and as hereinafter provided.

B Materials

B.1 Modular Blocks

Furnish modular blocks conforming to the dimensions shown in the plan and match the size, color, and texture of the existing retaining wall. Furnish modular blocks selected from the department's approved product list. At least 15 working days prior to the start of retaining wall addition, supply two sample modular blocks to be approved by the engineer prior to placement in the field.

Proprietary wall systems may be used for this work, but must conform to the requirements of this specification and be pre-approved for use by the departments' Bureau of Structures, Structures Development Section. Furnish the name of the companies supplying pre-approved material within 25 days after the award of contract. The department maintains a list of pre-approved systems of retaining walls. To be eligible for use on this project, a system must have been pre-approved and added to that list prior to the bid opening date.

Applications for pre-approval may be submitted at any time. Applications must be prepared in accordance to the requirements of chapter 14 of the department's Bridge manual. Information and assistance with the pre-approval process can be obtained by contacting the Structures Development 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 design the Retaining Wall Addition. The design of the Retaining Wall Addition shall be in conformance to the latest edition of the AASHTO Standard Specifications for Highway Bridges including interim specifications, the standard specifications, and standard engineering design procedures as determined by the department.

B.3 Wall System Components

Materials furnished under this contract shall conform to the requirements hereinafter provided.

B.3.1 Backfill

Wall Backfill, Type A, shall comply with the requirements for coarse aggregate No. 1 as given in standard spec 501.2.5.4. All backfill placed within a zone from the base of the leveling pad to the top of the final layer of wall facing units and within 1 foot behind the back face of the wall shall be Wall Backfill, Type A. This includes all material used to fill openings in the wall facing units.

A layer of Geotextile Fabric Type "DF" (Schedule B) shall be placed vertically between the retained soil and the Type A backfill. The geotextile fabric shall extend from the top of the leveling pad to 6 inches below the surface of the retained soil. The geotextile shall then wrap across the top of the Type A backfill to the back of block wall facing.

B.3.2 Wall Facing

Provide wall facing units that consist of precast modular concrete blocks. All units shall incorporate a mechanism or devices that will develop a mechanical connection between vertical block layers. Units that are cracked, chipped or have other imperfections in accordance to ASTM C1372 or excessive efflorescence shall not be used within the wall.

The top course of facing units shall be a solid precast concrete unit designed to be compatible with the remainder of the wall. The finishing course shall be bonded to the underlying facing units with a durable, high strength, flexible adhesive compound compatible with the block material.

Block dimensions may vary no more than ±1/8 inch from the standard values published by the manufacturer, in accordance to ASTM C1372. Blocks must have a minimum depth (front face to back face) of 8 inches. The minimum front face thickness of blocks shall be 4 inches measured perpendicular from the front face to inside voids greater than 4 square inches. Also the minimum allowed thickness of any other portion of the block is 2 inches.

Cementitious materials and aggregates for modular blocks shall conform to the requirements of ASTM C1372 section 4.1 and 4.2. Modular blocks shall meet the following requirements:

Test	**Method**	**Requirement**
Compressive Strength (psi)	ASTM C140	5000 min.
Water Absorption (%)	ASTM C140	6 max.
Freeze-Thaw Loss (%)	ASTM C1262[(1)]	
40 cycles, 5 of 5 samples		1.0 max.[(2)]
50 cycles, 4 of 5 samples		1.5 max.[(2)]

[(1)] Test shall be run using a 3% saline solution.

[(2)] Test results that meet either of the listed requirements for Freeze-Thaw Loss are acceptable.

All blocks shall be certified as to strength, absorption, and freeze-thaw requirements unless, due to contract changes after letting, certified blocks are not available when required. At the time of delivery of the certified blocks, furnish the engineer a certified test report from a department-approved independent testing laboratory for each lot of modular blocks. The certified test report shall clearly identify the firm conducted the sampling and testing, the type of block, the date sampled, name of the person conducting the sampling, the represented lot, the number of blocks in the lot, and the specific test results for each of the stated requirements of this specification. A lot shall not exceed 5000 blocks. The certified test results will represent all blocks within the lot. Each pallet

of blocks delivered shall bear lot identification information. Block lots that do not meet the requirements of this specification or blocks without supporting certified test reports will be rejected and shall be removed from the project at the contractor's expense.

C Construction

Notify property owner at least five working days prior to the start of Retaining Wall Addition. Carefully remove existing cap stone designated for salvage to avoid damage as shown in the plans or as specified by the engineer. Place salvaged cap stone and materials in neat piles outside the construction limits but within right-of-way at locations approved by the engineer.

Before placing new modular blocks give the engineer sufficient notice to allow inspection of the existing wall. Construct the Retaining Wall Addition in accordance to the manufacturer's instructions, at the locations and to the dimensions shown on the plan and as directed by the engineer.

Place materials in the areas as indicated on the plans and as detailed in this specification. Backfill lifts shall be no more than 8-inches in depth. Backfilling shall closely follow erection of each course of wall facing units.

Compact each layer of wall backfill Type A with at least three passes of lightweight manually operated compaction equipment acceptable to the engineer.

Conduct backfilling operations in such a manner as to prevent damage or misalignment of the wall facing units. At no expense to the department, correct any such damage or misalignment as directed by the engineer.

Do not operate tracked or wheeled equipment within 3 feet of the back face of the blocks. The engineer may order the removal of any large or heavy equipment that may cause damage or misalignment of the wall facing units.

Relay and finish the salvaged cap stone. After construction of the wall, restore the surrounding area located above and below all precast block retaining wall sites to its original condition and to the finished details on the plans.

Damage to the existing retaining wall during this construction or damage during other stages of construction is the contractor's responsibility to repair. If the contractor damages any portion of the existing retaining wall that needs to remain in place, the contractor will repair the wall to the satisfaction of the engineer at no additional cost. Replacing damaged retaining wall during construction is included in the Retaining Wall Addition bid item.

D Measurement

The department will measure Retaining Wall Addition in area by the square foot placed 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.0165.0211	Retaining Wall Addition	SF

Payment is full compensation as outlined in this specification; for designing the wall; for contacting the property owner; for preparing the site; for removing, salvaging and relaying cap stone; for supplying all necessary wall components to produce a functional system; for constructing the retaining system and placing modular blocks; for providing backfill, backfilling, and compacting the backfill; for furnishing and installing geotextile fabric; for disposing of materials; for matching characteristics of existing wall; and for repairing all damage. No additional payments will be made due to construction disturbance or damage during other stages of construction as part of this contract.

226. Architectural Surface Treatment Stone, Item SPV.0165.0212.

A Description

This special provision describes a random spilt edge ashler architectural surface treatment on the exposed concrete surfaces of retaining walls.

B Materials

Use reusable form liners that are made of highway strength urethane or lightweight one time use elastomeric foam 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.

Formliner shall have a random spilt edge ashler pattern. Individual stone face dimensions shall range from a minimum of 4 inches by 5 inches to maximum of 15 inches by 20 inches. Individual stones shall be generally rectangular in shape with a front face resembling split limestone. Maximum relief of the formliner shall be 1 1/2”.

Use a release agent that is compatible with the form liner and coloring materials.

Wall ties shall have set "break-backs" at a minimum of ¾-inches from the finished concrete surface.

C Construction

Supply new form liner or reusable form liner with a random spilt edge ashler pattern. If reusable form liner is used, clean the form liner prior to each pour and ensure that it is free of any build-up. Visually inspect each liner for blemishes or tears, and repair if necessary per manufacturer's recommendations.

Formliner shall be placed on walls as indicated in the plans. Random spilt edge ashler pattern shall extend a minimum of 6” below finished grade.

Apply form release agent per manufacturer's recommendations.

Attach liner securely to forms in accordance to manufacturer's recommendations to maintain a continuous random spilt edge ashler pattern. Coordinate wall ties with form liner and form manufacturer, e.g., diameter, size, and frequency where applicable.

The contractor shall prepare and deliver to the field office a 3 foot by 3 foot concrete test panel. Test panel shall be cast with the proposed formliner so the engineer will be able to evaluate the adequacy of the product and the forming methods to yield the desired results.

The engineer shall inspect condition of the test panel and its dimensional quality. All voids and irregularities shall be repaired using the same methods as on the final structures. The engineer will evaluate the test panel for definition and consistency. If the test panel is accepted the workmanship becomes the standard for the balance of the contractors work and incorporation into the final structures.

If the test panel is not accepted, the contractor shall prepare another test panel and repeat the process, using either a different product or different methods. This procedure shall be repeated until the test panel is accepted by the engineer.

Grind or fill pouring blemishes.

D Measurement
The department will measure Architectural Surface Treatment Stone, by the square 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.0165.0212	Architectural Surface Treatment Stone	SF

Payment is full compensation for furnishing formliners, attaching formliners to forms; for forming and pouring test panels, delivery of test panels to site; producing the proposed architectural surface treatment; finishing and protecting the surface treatment; and for properly disposing of surplus material and test panels.

227. Staining Concrete Stone, Item SPV.0165.0213.

A Description
Furnish and apply concrete stain to the random ashler stone concrete surfaces of structures as detailed in the plans.

B Materials
B.1 Concrete Stain
Use concrete stain manufactured for use on exterior concrete surfaces. Use the following products, or equal as approved by the department, as part of the finish system:

Tri-Sheen Acrylic by TK Products
TK-5272 Tri-Sheen Pigmented Stain
B-97-200 Series Concrete Stain by Sherwin Williams
(*Natural Look)

C Construction
Furnish, prepare, apply, cure and store all materials according to product manufacture directions specified for the type and condition of application required.

C.1 Preparation of Concrete Surfaces

Match or exceed the stain manufacturer's minimum recommended curing time of the concrete or 28 days, whichever is greater before applying base color stain.

Prior to staining, make sure all areas to be stained are clean and dry.

C.2 Staining Concrete Surfaces
Apply the stain in strict conformance with product manufacture requirements.

Apply the concrete stain when the temperature of the concrete surface is 45 degrees F or higher, or as specified by the manufacturer.

The final color of the concrete following application of the stain system shall match the Sherwin Williams Color system. Sherwin Williams is not a designation of product. It is used for color designation only; all colors shall be a flat (lusterless) finish.

Base Color	Utterly Beige– SW 6080
Accent Color 1	Latte – SW 6108
Accent Color 2	Whole Wheat – SW 6121

Stone face surfaces shall be stained in a randomly mixed color arrangement. Each stone face that receives accent color 1 and 2 should have the protruding portions of the face (approximately 70-80%) stained to highlight the stone texture.

Stain 40% of the stone wall surface with Accent Color 1 and 40% with Accent Color 2.

The remaining 20% of the wall surface shall remain the base color.

Do not begin the staining the structure until adjacent operations are completed to a point where this work can begin without receiving damage or blowing dust. Where this work is adjacent to exposed paved areas, provide temporary covering protection from overspray or splatter.

C.3 Test Areas
Prior to applying the stain to the structure, test applications shall be required on sample panels measuring 2 feet by 2 feet to demonstrate stain application and color mix. Test panels shall be delivered to the project field office. Prepare the concrete surfaces of the sample panel and apply stain using the same materials and in the same method as proposed for the structure. Do not apply the stain to structures until the department approves the test panels.

C.4 Surfaces to be Coated
Apply the concrete stain to the random ashler stone surfaces as shown on the plan.

D Measurement
The department will measure Staining Concrete Stone by the square 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.0165.0213	Staining Concrete Stone	SF

Payment is full compensation for furnishing and applying three colors of concrete stain; and for preparing the concrete surface and sample panels.

228. Concrete Staining Special, Item SPV.0165.0214.

A Description
Furnish and apply concrete stain to Low Profile Concrete Barrier, Low Profile Concrete Barrier End Section, and Vertical Face Parapet Special as detailed in the plans.

B Materials
B.1 Concrete Stain
Use concrete stain manufactured for use on exterior concrete surfaces. Use the following products, or equal as approved by the department, as part of the finish system:

Tri-Sheen Acrylic by TK Products
TK-5272 Tri-Sheen Pigmented Stain
B-97-200 Series Concrete Stain by Sherwin Williams
(*Natural Look)

C Construction
Furnish, prepare, apply, cure and store all materials according to product manufacture directions specified for the type and condition of application required.

C.1 Preparation of Concrete Surfaces
Match or exceed the stain manufacturer's minimum recommended curing time of the concrete or 28 days, whichever is greater before applying base color stain.

Prior to staining, make sure all areas to be stained are clean and dry.

C.2 Staining Concrete Surfaces
Apply the stain in strict conformance with product manufacture requirements.

Apply the concrete stain when the temperature of the concrete surface is 45 degrees F or higher, or as specified by the manufacturer.

The final color of the concrete following application of the stain system shall match the Sherwin Williams Color system. Sherwin Williams is not a designation of product. It is used for color designation only; all colors shall be a flat (lusterless) finish.

Base Color Latte – SW 6108

Do not begin the staining the Low Profile Concrete Barrier, Low Profile Concrete Barrier End Section, and Vertical Face Parapet Special until adjacent operations are completed to a point where this work can begin without receiving damage or blowing dust. Where this work is adjacent to exposed paved areas, provide temporary covering protection from overspray or splatter.

C.3 Test Areas
Prior to applying the stain to the structure, test applications shall be required on sample panels measuring 1 foot by 1 foot to demonstrate stain application and color. Test panels shall be delivered to the project field office. Prepare the concrete surfaces of the sample panel and apply stain using the same materials and in the same method as proposed for the structure. Do not apply the stain to structures until the department approves the test panel.

C.4 Surfaces to be Coated
Apply the concrete stain as shown on the plan. Stain both front and back vertical surfaces on the Low Profile Concrete Barrier and Low Profile Concrete Barrier End Section. Stain only the roadway vertical face of the Vertical Face Parapet Special. Do not apply stain to any horizontal surfaces.

D Measurement
The department will measure Concrete Staining Special by the square 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.0165.0214	Concrete Staining Special	SF

Payment is full compensation for furnishing and applying concrete stain; and for preparing the concrete surface and sample panels.

229. Wall Concrete Panel Mechanically Stabilized Earth LRFD, Item SPV.0165.4010.

A Description

This special provision describes designing, furnishing materials and erecting a permanent earth retention system in accordance to the lines, dimension, elevations and details as shown on the plans and provided in the contract. The design life of the wall and all wall components shall be 75 years.

B Materials

B.1 Proprietary Mechanically Stabilized Earth Concrete Panel 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 may be used for this work, but must conform to the requirements of this specification and be pre-approved for use by the department's Bureau of Structures, Structures Design Section. The department maintains a list of pre-approved systems of retaining walls. To be eligible for use on this project, a system must have been pre-approved and added to that list prior to the bid opening date. The name of the pre-approved proprietary wall system selected shall be furnished to the engineer within 25 days after the award of contract. The location of the plant manufacturing the concrete panels shall be furnished to the engineer at least 14 days prior to the start of panel production.

To receive pre-approval, the retaining wall system must comply with all pertinent requirements of this provision. Applications for pre-approval may be submitted at any time. Applications must be prepared in accordance to the requirements of Chapter 14 of the department's LRFD Bridge Manual. Information and assistance with the pre-approval process can be obtained by contacting the Structures Design Section in Room 601 of the Hill Farms State Transportation Building in Madison or by calling (608) 266-8494.

B.2 Design Requirements

It is the responsibility of the contractor to supply a design and supporting documentation as required by this special provision, for review by the department, to show the proposed wall design is in compliance with the design specifications. Four copies of the following shall be submitted to the engineer for review and acceptance no later than 60 days from the date of notification to proceed with the project.

The design/shop plans shall be prepared on reproducible sheets 11 inch x 17 inch, including borders. Each sheet shall have a title block in the lower right corner. The title block shall include the project identification number and structure number. Design calculations and notes shall be on 8 ½ inch x 11 inch sheets, and shall contain the project identification number, name or designation of the wall, date of preparation, initials of designer and checker, and page number at the top of the page. All plans, shop drawings, and calculations shall be signed, sealed and dated by a professional engineer licensed in the State of Wisconsin.

The design shall be in compliance with the *AASHTO LRFD Bridge Design Specifications 5th Edition 2010*, (AASHTO LRFD) with latest interim specifications for Mechanically Stabilized Earth Walls, WisDOT's current *Standard Specifications for Highway and Structure Construction* (Standard Specifications), Chapter 14 of the WisDOT LRFD Bridge Manual and standard engineering design procedures as determined by the department. Loads, load combinations, load and resistance factors shall be as specified in AASHTO LRFD Section 11. The associated resistance factors shall be defined in accordance to Table11.5.6-1 LRFD.

Design and construct the walls in accordance to the lines, grades, heights and dimensions shown on the plans, as herein specified, and as directed by the department. Where walls or wall sections intersect with an included angle of 130 degrees or less, a vertical corner element separate from the standard panel face shall abut and interact with the opposing standard panels. The corner element shall have ground reinforcement connected specifically to that panel and shall be designed to preclude lateral spread of the intersecting panels. If the wall is installed in front of a bridge abutment or wing, it shall also be designed to resist the applied abutment/bridge lateral forces specified on the contract plans.

Walls parallel to supporting highway traffic shall be designed for the effects of highway surcharge loading equivalent of 2 feet soil surcharge weight or 240 psf. The design shall also consider the traffic barrier impact where applicable. Walls that do not carry highway traffic shall be designed for a live load surcharge of 100 psf in accordance to Chapter 14 of the WisDOT LRFD Bridge Manual or as stated on the plans.

A maximum value of the angle of internal friction of the wall backfill material used for design shall be assumed to be 30 degrees without a certified report of tests. If a certified report of tests yields an angle of internal friction greater than 30 degrees, the larger test value may be used for design, up to a maximum value of 36 degrees.

An external stability check at critical wall stations showing Capacity Demand Ratios (CDR) for sliding, eccentricity, and bearing checks is performed by the department or its consultant and is provided on the wall plans.

The design of the Wall Concrete Panel Mechanically Stabilized Earth by the contractor shall consider the internal and compound stability of the wall mass in accordance to AASHTO LRFD 11.10.6. The internal stability shall include soil reinforcement pullout, soil reinforcement rupture, and panel-reinforcement connection failure at each soil reinforcement level. The design shall be performed using the Simplified Method or Coherent Gravity Method. Calculations for factored stresses and resistances shall be based upon assumed conditions at the end of the design life. Compound stability shall be computed for the applicable strength limits.

Facing panels shall meet the design requirements of AASHTO LRFD 11.10.2.3. The Facing panels shall also be designed to resist compaction stresses that occur during the wall erection. The minimum thickness of the Facing panel shall be 5.5 inches. The surface area of a standard single panel cannot exceed 60 square feet. The maximum height of a standard panel shall be 5 feet. The top and bottom panels may exceed 5 foot in height based on site topography subject to the approval by the Structures Design Section. The design of the steel reinforcement within the panels shall be based on one-way bending action. Design the wall panels and joints between panels to accommodate a maximum differential settlement of 1 foot over a 100-foot length, unless the plans indicate other.

The minimum length of soil reinforcement measured from the back face of the wall shall be equal to 0.7 the wall height or as shown on the plan. In no case shall this length be less than 8 feet. The soil reinforcement length shall be the same from the bottom to the top of the wall. The soil reinforcement shall extend a minimum of 3.0 feet beyond the theoretical failure plane in all cases. The maximum vertical spacing of soil reinforcement layers shall be 31 inches. The uppermost layer of the reinforcement shall be located a minimum of six inches below the bottom of an overlying slab, footing or top of the wall. The upper layers of the soil reinforcement shall also be checked to verify that they have sufficient tensile resistance against traffic barrier impact where applicable.

All soil reinforcement steel required for the reinforced soil zone shall be connected to the face panels. The reinforcement and the reinforcement/facing connection strength shall be designed to resist maximum factored reinforcement loads in accordance to AASHTO LRFD Section 11.10.6. The nominal long term design strength in steel reinforcement and connections shall be based upon assumed conditions at the end of the design life.

Soil reinforcement shall be prefabricated into single or multiple elements before galvanizing. Soil reinforcement shall be fabricated or designed to avoid piling, drainage structures or other obstacles in the fill without field modifications. Cutting or altering of the basic structural section of either the strip or grid at the site is prohibited unless approved by the Structures Design Section. A minimum clearance of 3” shall be maintained between any obstruction and reinforcement unless otherwise approved. Splicing steel reinforcement is not allowed unless approved by the Structures Design Section.

MSE facing panels shall be installed on concrete leveling pads. The minimum cross section of the leveling pad shall be 6-inches deep by 1-foot wide. Potential depth of frost penetration at the wall location shall not be considered in designing the wall for depth of leveling pad.

Submit the following to the engineer for review: complete design calculations, explanatory notes, supporting materials, specifications, and detailed plans and shop drawings for the proposed wall system. Sample analyses and hand output shall be submitted to verify the output by the software. The design calculations and notes shall clearly indicate the Capacity to Demand Ratios (CDR) for all internal stabilities as defined in AASHTO LRFD.

The wall submittal package shall be submitted electronically to the engineer and Structures Design Section. Submit all required information no later than 30 days prior to beginning construction of the wall. The detailed plans and shop drawings shall include all details, dimensions, quantities and cross-sections necessary to construct the walls.

B.3 Wall System Components

Materials furnished for wall system components under this contract shall conform to the requirements of this specification. All certifications related to material and components of the wall systems specified in this subsection shall be submitted to the engineer.

B.3.1 General

The walls shall have modular precast concrete face panels produced by a wet cast process, and have cast-in-place concrete pads or footings. The concrete panels shall have a minimum strength of 4000 psi at 28 days. The panel edges shall be configured so as to conceal the joints. The detail shall be a shiplap, tongue and groove or other detail adequate to prevent vandalism or ultraviolet light damage to the backside of the wall joint covering. Joints between panels shall be no more than 0.75 inch. Use full wall height slip joints at points of differential settlement when detailed on the plan. Horizontal joints must be provided with a compressible bearing material to prevent concrete to concrete contact.

A minimum of two bearing pads shall be used per panel. The allowable bearing stress shall not exceed 900 psi. The bearing pads shall be either preformed EPDM rubber conforming to ASTM D-2000, Grade 2, Type A, Class A with a minimum Durometer Hardness of 80 or high- density polyethylene pads with a minimum density of 0.034 lb/in^3 in accordance to ASTM 1505. An 18-inch wide geotextile shall be used on the backface of the wall panels to cover all panel joints. The geotextile shall meet the physical requirements stated in standard spec 645.2.4 for Geotextile Fabric, Type DF, Schedule B, except that the grab tensile strength shall be a minimum of 180 pounds in both the machine and cross-machine directions. The geotextile shall be attached with a standard construction adhesive suitable for use on concrete surfaces and cold temperatures. The adhesive shall be applied to the panels, not to the geotextile.

All steel portions of the wall system exposed to earth 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.

Use a wall leveling pad that consists of poured concrete masonry , Grade A, A-FA, A-S, A-T,A-IS or A-IP concrete conforming to standard specification section 501 as modified in the QMP Concrete Structures section of these special provisions. Provide QMP for leveling pad concrete as specified in the QMP Concrete Structures section of these special provisions. The minimum embedment to the top of the leveling pad shall be as shown on the plan. Step the leveling pad to follow the general slope of the ground line. The leveling pad's steps shall keep the bottom of the wall within one half the panel heights of the minimum embedment i.e. the minimum embedment plus up to one half the height of one panel. Additional embedment may be detailed but will not be measured for payment.

B.3.2 Backfill

Furnish and place backfill for mechanically stabilized earth concrete panel walls as shown on the plans and as hereinafter provided.

Provide and use backfill that consists of natural sand or a mixture of sand with gravel, crushed gravel or crushed stone. It shall not contain foundry sand, bottom ash, blast furnace slag or other potentially corrosive material.

Provide material conforming to the following gradation requirements.

SieveSize	Percentage by Weight Passing
1 inch	100
No. 40	0 - 60
No. 200	0 - 15

The material shall have a liquid limit not greater than 25, as per AASHTO T89, and a plasticity index not greater than 6, as per AASHTO T90.

In addition, backfill material shall meet the following requirements.

Test	Method	Value
pH	AASHTO T-289	5 – 10.0
Sulfate content	AASHTO T-290	200 ppm max.
Chloride content	AASHTO T-291	100 ppm max.
Electrical Resistivity	AASHTO T-288	3000 ohm/cm min.
Organic Content	AASHTO T-267	1.0% max.
Angle of Internal Friction	AASHTO T-236	30 degrees min.

Prior to placement of the backfill, obtain and furnish to the engineer a current certified report of test results that the backfill material complies with the requirements of this specification. Tests will be performed by a certified independent laboratory. When backfill characteristics and/or sources change, a certified report of tests will be provided for the new backfill material.

C Construction

C.1 Excavation and Backfill

Excavation will encompass the preparation of the foundation for the leveling pad and the reinforcing strips in accordance to standard spec 206. The volume of excavation covered is limited to the width of the reinforced mass and to the depth of the leveling pad unless shown or noted otherwise on the plan. At the end of each working day, provide good temporary drainage such that the backfill shall not become contaminated with run-off soil or water if it should rain. Do not stockpile or store materials or large equipment within 10 feet of the back of the wall.

Compact all backfill behind the wall as specified in standard spec 207.3.6.

Backfill placement shall closely follow the erection of each course of panels. Compact the backfill to 95.0% of maximum density as determined by AASHTO T-99, Method C. 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.

Perform compaction testing on the backfill. When performing nuclear testing, use a nuclear gauge from the department's approved list, ensure that the operator is a HTCP certified Nuclear Density Technician I, and conform to CMM 8.15 for testing and gauge monitoring methods. Conduct testing at a minimum frequency of 1 test per 2 feet of vertical wall height, per 200 feet length of wall, or major portion thereof. A minimum of one test for every 2-foot of vertical wall height is required. Test sites will be selected using ASTM Method D3665. Deliver documentation of all compaction testing results to the engineer at the time of testing. The cost of compaction testing shall be considered incidental to the cost of the wall.

Place and compact the MSE backfill to the level of the next higher layer of MSE reinforcement before placing the MSE reinforcement or connecting it to the wall facing. The MSE reinforcement shall lay horizontally on top of the most recently placed and compacted layer of MSE backfill. Bending of MSE reinforcement that result in a kink in the reinforcement shall not be allowed. If skewing of the reinforcement is required due to obstruction in the reinforced fill, the maximum skew angle shall not exceed 15 degrees from the normal position unless a greater skew angle is shown on the plans. The adequacy of the skewed reinforcement in such a case shall be addressed by supporting calculations.

C.2 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 may 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.3 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 LRFD 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 plan, wall area constructed above or below these limits will not be measured for payment.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0165.4010	Wall Concrete Panel Mechanically Stabilized Earth LRFD	SF

Payment is full compensation for supplying a design and shop drawings; preparing the site, including all necessary excavation and disposal of materials; supplying all necessary wall components to produce a functional system including cap and copings; constructing the retaining system and drainage system; and for providing backfill, backfilling, compacting, performing compaction testing. Parapets, railings, abutment bodies and other items above the wall cap or coping will be paid for separately. Vehicle barrier and its support will be paid separately.

Any required topsoil, fertilizer, seeding or siding and mulch will be paid for at the contract unit price of topsoil, fertilizer, seeding or sodding and mulch, respectively.

230. Covered Tunnel Waterproofing, Item SPV.0165.4030.

A Description

Work under this item consists of providing and installing exterior waterproofing on the exterior top and sides of the covered portions of the existing cut and cover tunnel structure and the new tunnel extensions, to the limits shown on the contract plans. Exterior waterproofing for the existing roof of the tunnel shall be Turbo-Seal Waterproofing System manufactured by RE-Systems Group, USA. Perform work in accordance to pertinent parts of the standard specifications, the plans, and these special provisions.

A.1 References

ASTM D 1709 - Standard Test Methods for Impact Resistance of Plastic Films by the Free Falling Dart Method.

ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials.

ASTM C 836 - Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course.

ASTM E 1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.

ASTM D 1353 - Standard Test Method for Nonvolatile Matter in Volatile Solvents for Use in Paint, Varnish, Lacquer, and Related Products.

ASTM E-154-88 - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.

ASTM D 56 - Standard Test Method for Flash Point by Tag Closed Cup Tester.

ASTM C 1135 - Standard Test Method for Determining Tensile Adhesion Properties of Structural Sealants.

ASTM D 751 - Standard Test Methods for Coated Fabrics.

ASTM D-412-98 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers.

ASTM D 2196 - Standard Test Methods for Rheological Properties of Non-Newtonian Materials by Rotational (Brookfield type) Viscometer

A.2 Contractor Qualifications

A.2.1 Installer

Installer must be licensed, certified in writing and approved by membrane manufacturer RE-Systems Group, USA for the installation of the Turbo-Seal Waterproofing System.

A.2.2 Membrane Manufacturer
Membrane Manufacturer must show evidence that the specified polymer rubber has been manufactured by the same source for 10 years and successfully installed on a yearly basis for a minimum of 10 years on projects of similar scope and complexity.

A.3 Submittals
Submit Product Data for each type of waterproofing specified, including manufacturer's printed instructions for evaluating and preparing the substrate, technical data, and tested physical and performance properties.

Project Data - Submit Shop Drawings showing locations and extent of waterproofing, including details for substrate joints and cracks, sheet flashing, penetrations, and other termination conditions.

Samples – Submit representative samples of the following for approval:
1. Waterproof Membrane Material.
2. Protection Course Material.
3. Prefabricated Drainage Mat as required.
4. Structural Mesh Material as required.
5. Geo-textile and detailing sheet as required.

Installer Certificates – Submit certificates signed by manufacturer certifying that Installers comply with requirements under the "Quality Assurance" Article.

A.4 Warranty
Manufacturer shall warranty this waterproofing system for a period of 10 years from date of issuance of Certificate of Compliance for this waterproofing system material.

B Materials
B.1 Waterproofing Membrane
Tunnel waterproofing shall consist of a Poly Rubber Gel called Turbo-Seal manufactured by RE-Systems Group, USA. It shall be a cold fluid-applied waterproofing system composed of a single component, polymer modified, poly-rubber gel (a non-Newtonian, thixotropic gel) and ancillary products as manufactured by the Re-Systems Group (www.re-systemsgroup.com). No substitutions permitted.

Poly-rubber gel waterproofing systems shall have the following performance properties:
1. Resistant to hydrostatic pressures up to 160 psi.
2. Self-adhering and completely bonded to the entire surface of the substrate with no voids or discontinuity.
3. Resistant to chemical attack.
4. Not affected by wet/dry cycling.
5. Contains less than 1 per cent volatile organic compounds (VOC).
6. Non-toxic and non-flammable.
7. Seamless.
8. Waterproofing poly-rubber gel contains 25% recycled materials.

9. One-part gel material.
10. Applied without primer.
11. Waterproofing poly-rubber gel remains flexible and never completely cures.

The poly-rubber gel waterproofing systems components shall have the following physical properties: Turbo-Seal P

PROPERTY	RESULTS	TEST METHOD
Solids Content	75%	ASTM D1353
Resistance to Decay	0% moisture permeation and weight change	ASTM E-154-88
Puncture Resistance*	2200g (4.85lbs)	ASTM D 1709
Flash Point	> 200° F	ASTMD56
Tensile Strength*	190 ± 0.11 lbs/in.	ASTMD-412-98
Elongation %	394%	ASTM C1135
Hydrostatic Pressure Resistance*	169 ± 3 lbs/in2	ASTM D-751
Adhesion to Concrete	Rating of 1 (Excellent)	ASTMD-412-98
Crack Bridging Flexibility	No cracks	ASTMC-836-89
Moisture Permeability*	0.0185 perms	ASTM E-96-80
Viscosity	150,000 cP**; 3,100,000 cP***	ASTM D2196

* Classification based on composite system with reinforced HDPE Turbo-Sheet
** Pump/application mixed condition
*** Static surface condition

HDPE Turbo sheet 16 mil reinforced Protection Sheet/Vapor Retarder with geo-composite backing:

Classification	A	ASTM E 1745
Water Vapor Permeance	0.0185 perms	ASTM E 96
Tensile Strength	190 lbf/in	ASTM E D 882
Puncture Resistance	2200 grams	ASTM D 1709

As required, Geocomposite mesh (Miracle Mesh) applied to the poly-rubber gel prior to concreting shall have the following properties:

1. Mesh size: approximately 1/2 inch by 1/2 inch +/- 1/16 inch
2. Mesh thickness .075" +/-.005"
3. Nominal hole size: 1/2" - 80 percent open area nominal
4. MD breakload > 17lb / strand
5. TD breakload > 15lb / strand
6. Color: UV stabilized black

As required, Water-Soluble Film (Water soluble protection sheet)

1. Soluble resin composed of:
    a. 90 percent polyvinyl alcohol (PVA, PVOH, PVAL), polymerization degree: 1,700 to 1,800
    b. Hydrolyzation degree: minimum 86 percent
    c. 10 percent plasticizers and organic additive

2. Water Soluble biodegradable without toxic residue
3. Stable at normal environmental conditions

B.2 Waterproofing Membrane Accessories

1. Concrete Repair Materials: Materials approved by manufacturer.
2. Seaming Tape: Turbo-Tape, 1/16" butyl laminated to polyethylene film or suitable alternate approved by manufacturer.

B.3 Manufacturer Certification

The manufacturer of the selected waterproofing membrane system shall provide written certification that the selected waterproofing membrane system is suitable for the intended purpose and application to waterproof the top as shown in the plans for the cut-and-cover tunnel structures included in the contract.

B.4 Pre-Installation Meeting

A pre-installation meeting shall be held prior to commencement of field operations to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work. Agenda for meeting shall include review of special details and flashing.

B.5 On-Site Manufacturer Representative

A representative of the selected waterproofing membrane manufacturer shall be on-site for a minimum of two days of the initial application of the waterproofing membrane to provide training and direction to installers and on-site inspection personnel on the proper application, installation, and inspection of the waterproofing membrane system.

B.6 Delivery, Storage and Handling

All of the materials on site shall be a specified product. All components of the waterproofing system shall be provided by the same manufacturer. Deliver materials to site in manufacturer's original, unopened containers and packaging. Each product and component shall have name, size, manufacturing date, and manufacturer's name and location.

Store materials in a clean area in accordance to manufacturer's instructions.

Protect materials during handling and application to prevent damage or contamination. Discontinue application during rain and resume work after the area is acceptably dry and ready for application. When viscosity increases to an unacceptable level due to cold temperature, use a warming method recommended by the manufacturer to reduce viscosity. Addition of a solvent is strictly prohibited.

B.7 Environmental Requirements

Product not intended for uses subject to abuse or permanent exposure to the elements. Membrane can be applied to green concrete. Membrane can be applied with minimal surface preparation. Membrane can be applied without primer. Ambient temperature shall

be within manufacturer's specifications. (Greater than +0ºF/- 18ºC.) Product not intended for significant UV exposure.

C Construction

C.1 General

Examine all surfaces to receive the waterproofing assembly to verify it is acceptable and proper for the application of the membrane. Refer to RE-Systems Group, USA Application Guidelines manual.

1. Verify that concrete has cured and aged for minimum time period recommended by waterproofing manufacturer.
2. Verify that substrate is visibly dry and free of ponded water.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

C.2 Surface Preparation

Clean and prepare substrate according to manufacturer's written recommendations. Provide clean, dust free, and dry substrate for waterproofing application. (Surface primer is unnecessary.) Surfaces must be clean, relatively smooth and free of standing water. Patch all holes and voids and smooth out any surface misalignments. Remove and patch all concrete form ties. Close off deck drains and other penetrations to prevent spillage and migration of waterproofing fluids. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, acid residues, and other penetrating contaminants or film-forming coatings from substrate. Mask adjoining surfaces not receiving waterproofing to percent spillage affecting other construction. Waterproofing membrane can be applied to green concrete.

C.3 Application

Prepare detailing and flashing in accordance to the manufacturer's standard guideline details. Complete all detailing and flashing before installing the membrane over the field of the substrate.

1. Apply the rubberized membrane at a rate to provide a continuous, monolithic coat of 90 mil minimum (approximately 2.3 mm).
2. Embed the Turbo-Sheet (Protection Layer) into the membrane.
3. Overlap adjoining sheet edges (dry) a minimum of 2"-3" (50.8 mm - 76.2 mm) to ensure complete coverage.
4. Tape all seams.

C.4 Testing

If feasible, it is strongly recommended that the deck area or portions thereof be water tested by means of electronic testing or ponding water to a minimum depth of 2" (50.8 mm) for a period of 48 hours to check the integrity of the membrane installation. Verify that the structure can support the dead load weight of a water test before testing. If leaks should occur, the water must be drained completely and the membrane installation repaired.

C.5 Protection Course
Within 24 hours of placing the membrane, provide a suitable protection course as the plans show and per the waterproofing membrane manufacturer's recommendations. If using a 6" sand layer, conform to the requirements of Base Aggregate Open Graded Special. Only use equipment on the membrane as permitted by the waterproofing membrane manufacturer. Use caution not to turn approved equipment when stationary. To prevent tearing the membrane, avoid sudden starts, stops, accelerations, or decelerations. Chemical solvents, gasoline, diesel fuel, mineral spirits, or other deleterious substances shall not be spilled or leaked onto the membrane. When required to accommodate traffic control staging, keep fill material at least 12 inches away from the terminating edge of the membrane to provide for overlap. The waterproofing membrane manufacturer shall have a minimum of one employee present during the placement of the protection course to ensure that all necessary membrane repairs are accomplished.

C.6 Completion
Contractor and a representative of the waterproofing membrane manufacturer shall inspect the waterproofing assembly and notify the contractor of any defects. All defects must be corrected. Clean up all debris and equipment.

D Measurement
The department will measure Covered Tunnel Waterproofing by the square 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.0165.4030	Covered Tunnel Waterproofing	SF

Payment is full compensation for furnishing and installing the waterproofing membrane, and reinforcement mats; and for providing training and direction in installation by means of an on-site waterproofing membrane manufacturer representative. Protection courses consisting of protection boards, sheets or fabrics will be incidental to the work. Protection courses consisting of sand or other base course approved by the waterproofing membrane manufacturer will be paid for separately under Base Aggregate Open Graded Special.

231. Exposed Tunnel Waterproofing, Item SPV.0165.4040.

A Description
Work under this item consists of providing and installing ultraviolet-proof exterior waterproofing on the exposed outside faces of the top and sides of the new cut and cover tunnel extensions and the existing cut and cover tunnel structure. Perform work in accordance to pertinent parts of the standard specifications, the plans, and these special provisions.

A.1 Submittals

Submit the following:

- Product Data and Shop Drawings. Prior to ordering waterproofing materials, submit the items listed below to the engineer for approval:
- 3 copies of waterproofing membrane manufacturer's specifications for proposed products and installation instructions.
- Written approval of waterproofing membrane manufacturer's use of the products in the proposed system.
- Specimen copy of waterproofing membrane manufacturer's warranty.
- Dimensioned shop drawings indicating areas of work, membrane layout and profile details of flashing methods for penetrations and terminations.
- Samples. Provide samples of each material to be used in the systems described herein, including primers, geotextile sheet goods, mastics, tapes, and fluid applied waterproofing.
- Quality Assurance Submittals.
- Waterproofing Membrane Manufacturer Certification Letter.
- Source quality-control test reports.
- Field quality-control test reports.

A.2 Warranty

Manufacturer shall warranty this waterproofing system for a period of 10 years from date of issuance of Certificate of Compliance for this waterproofing system material.

B Materials

B.1 Waterproofing Membrane

B.1.1 General

Tunnel waterproofing consists of a methyl methacrylate, two component, cold spray applied, seamless, ultraviolet-proof elastomeric waterproofing system. Obtain primary materials from a single manufacturer for each product specified. The waterproofing membrane manufacturer shall have a minimum of 10 years experience in the production, sales, and technical support of seamless waterproofing membranes and related materials and meet all requirements specified herein. Waterproofing Membrane Manufacturers shall submit a list of projects of similar design and complexity completed within the past 3 years. Provide secondary materials which are acceptable to the manufacturers of the waterproofing membrane materials.

B.1.2 Manufacturer Certification

The manufacturer of the selected waterproofing membrane system shall provide written certification that the selected waterproofing membrane system is suitable for the intended purpose and application to waterproof the top and sides as shown in the plans for the cut-and-cover tunnel structures included in the contract.

B.1.3 Pre-Installation Meeting
A pre-installation meeting shall be held prior to commencement of field operations to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work. Agenda for meeting shall include review of special details and flashing.

B.1.4 On-Site Manufacturer Representative
A representative of the selected waterproofing membrane manufacturer shall be on-site for a minimum of two days of the initial application of the waterproofing membrane to provide training and direction to installers and on-site inspection personnel on the proper application, installation, and inspection of the waterproofing membrane system.

B.2 Delivery, Storage and Handling
Each container shall be delivered to the site with unbroken seals and shall bear label of the waterproofing membrane manufacturer. Protect from damage from sunlight, weather, excessive temperatures and construction operations. The applicator shall be provided with a storage area for all components. The area shall be cool, dry and out of direct sunlight and in accordance to waterproofing membrane manufacturer recommendations and relevant health and safety regulations. Materials not conforming to this requirement will be cause for rejection by the engineer and shall be removed from the site and replaced with approved materials at the contractor's expense.

Do not double stack pallets of waterproofing materials on the job site. Provide cover on top and sides, allowing for adequate ventilation.

Store protection board flat and off the ground. Provide cover on top and sides.

Keep copies of Material Safety Data Sheets (MSDS) for all components on site for review by the designer/engineer and/or other personnel.

Sequence deliveries to avoid delays, while minimizing on-site storage.

B.3 Environmental Requirements
All components of the waterproofing system shall comply with applicable Volatile Organic Compound (VOC) regulations.

B.4 Materials and Products
Fluid-Applied Waterproofing Membrane shall be 100% solvent free reactive, methyl methacrylate, two-component, spray-applied, ultraviolet-proof material. Where membrane is applied directly onto concrete or steel, the system shall include a methyl methacrylate primer that enhances the adhesive bond between the substrate and membrane. The membrane shall meet or exceed the following properties as related to laboratory-prepared samples tested at 68°F (20°C) and 24-hour cure where applicable:

Property	Test Method	Units
Gel Time	-	6-11 minutes
Cure Time	-	30 minutes
Water Vapor Transmission	ASTM E96 - 100 Method A	1.048 g/m2/day
Adhesion to Concrete	ASTM D4541	100 psi or failure of concrete
Minimum Tensile Strength	ASTM D638-91, Method A, Die C	1,700 psi
Min. Elongation at Break	CAN CGSB 37.50 M89	Pass 1/4" mandrel at -13°F
Crack Bridging	ASTM C836-00	Pass @ 10 cycles, 1/8 inch -15° F

No protection board shall be required. Calendered, reinforced non-woven, needle felt polypropylene geotextile, tape and other accessories specified or acceptable to manufacturer of fluid applied waterproofing membrane are permitted.

C Construction

C.1 Waterproofing Membrane

Allow a minimum of 14-days after concrete placement of the tunnel roof slab prior to application of water proofing membrane, or longer if required by the manufacturer of the selected waterproofing membrane to be installed. Concrete surface shall be clean and free of dust, foreign and loose matter. Concrete shall be dry and within acceptable temperature range for application of waterproofing membrane as specified by waterproofing membrane manufacturer.

Proceed with waterproofing work only after substrate preparation and penetrating work is complete and in condition to receive work of this special provision. Beginning of installation means contractor accepts substrates and conditions. Do not proceed with work until unsatisfactory conditions are corrected. Commencement of application of waterproofing to any surface will be construed as acceptance of that surface as proper to receive the waterproofing, and any defects in the work thereafter, except for structural cracks, shall be considered a defect in the waterproofing system.

Proceed with waterproofing work only when existing and forecasted weather conditions will permit work to be performed in accordance to waterproofing membrane manufacturer's recommendations. Application can proceed while air and substrate temperatures are between 14^{o} F (0^{o} C) and 120^{o} F (40^{o} C) providing the substrate is above the dew point. Outside of this range, the waterproofing membrane manufacturer shall be consulted.

Prepare surface for application of waterproofing membrane and apply primer bonding product as required by the selected waterproofing membrane manufacturer.

The following tests shall be conducted by the contractor or waterproofing membrane manufacturer's representative and recorded on a form to be submitted to the engineer.

- Temperature: Air, substrate temperature and dew point.
- Membrane Thickness: Wet film thickness shall be checked every 100 SF.
- Coverage Rates: Before spraying, the area to be applied shall be clearly marked out to indicate quantity of material used against the area covered.

C.2 Substrate Preparation

Surfaces shall be free of oil, grease, curing compounds, loose particles, moss, algae growth, laitance, friable matter, dirt, bituminous products, and previous waterproofing materials. If required, de-greasing shall be performed via detergent washing in accordance to ASTM D4258.

Where membrane system is applied directly onto concrete, concrete surfaces shall be abrasively cleaned, in accordance to ASTM D4259, to provide a sound substrate free from laitance.

Geotextile, where required by the waterproofing membrane manufacturer, shall be laid over top slab and walls and fixed per waterproofing membrane manufacturer recommendations.

C.3 Membrane Installation Procedure

Strictly comply with waterproofing membrane manufacturer's instructions and recommendations, except where more restrictive requirements are specified in this section.

Apply fluid applied waterproofing in three or four distinct steps as listed below:

1. Substrate preparation
2. Priming (areas where membrane is applied directly onto concrete)
3. Geotextile application
4. Membrane application

Immediately prior to the application of any component of the system, the surface shall be dry and any remaining dust or loose particles shall be removed using clean, dry, oil-free compressed air or industrial vacuum.

Where the area to be treated is bound by a vertical surface (e.g. curb or wall), the system may be continued up the vertical as necessary.

The handling, mixing, and addition of components shall be performed in a safe manner to achieve the desired results in accordance to the waterproofing membrane manufacturer's recommendations or as approved or directed by the engineer.

A neat finish with well-defined boundaries and straight edges shall be provided by the contractor.

C.4 Membrane Application

The waterproofing membrane shall consist of two coats with contrasting colors for quality control, to achieve a total thickness of 100 mils minimum. Application with insulation directly over the membrane shall be applied at 50 mils per coat. Application with concrete poured directly over the membrane shall be applied with the first coat (yellow) at 60 mils and the second coat (gray) at 40 mils. Immediately after application of the second coat and while it is still wet and ungelled, an aggregate of size equivalent to Indag #8 and approved by the waterproofing membrane manufacturer shall be broadcast to fall vertically into the surface of the membrane to cover 70-80% of the exposed area. When the membrane is fully cured, all loose and excess aggregate must be removed from the surface by compressed air or vacuum.

The membrane shall be comprised of two liquid Components A and B and a hardener powder which is to be added to Component B in accordance to the waterproofing membrane manufacturer's recommendations.

The substrate shall be coated in a methodical manner. Checks for wet film thickness shall be carried out typically once every 100 ft^2.

Test waterproofing membrane for pinholes and deficiencies upon completion of second coat. The entire surface of the membrane shall be “holiday tested” in accordance to ASTM D 4787 using an approved holiday tester. Holiday testing equipment shall be operated by engineer or the department’s designated representative and the equipment independently calibrated with valid certification. In accordance to ASTM D-4787, voltage shall be set at the NACE recommended voltage of 100 volts per mil. All holidays shall be located, marked for repair, documented, and repaired in accordance to the waterproofing membrane manufacturer’s recommendations. Repaired areas shall meet the total thickness requirements previously specified.

C.5 Membrane Repairs

If an area is left untreated or membrane becomes damaged, a patch repair shall be carried out to restore the integrity of the system. The damaged area shall be cut back to sound material and wiped with solvent (e.g. acetone) up to a width of at least 4 inches on the periphery, removing the tack coat and any contaminants. The substrate shall be primed as necessary, followed by the application of membrane. A continuous layer shall be obtained over the substrate with a 4 inches overlap onto the existing membrane.

Where the membrane is to be joined to existing cured material and at day joints, the new application shall overlap the existing one by at least 4 inches. No preparation shall be necessary unless the existing materials are contaminated with tack coat or dirt in which case the repair/overlap shall first be wiped with solvent (e.g. acetone).

D Measurement
The department will measure Exposed Tunnel Waterproofing by the square 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.0165.4040	Exposed Tunnel Waterproofing	SF

Payment is full compensation for furnishing and installing the waterproofing membrane including all primer and bonding products, reinforcement mats and protection courses; and for providing training and direction in installation by means of an on-site waterproofing membrane manufacturer representative.

232. Remove Existing Graffiti, Item SPV.0165.4050.

A Description
This special provision describes the removal of graffiti on existing exposed concrete and masonry surfaces.

B (Vacant)

C Construction
The engineer will direct the contractor as to when graffiti shall be removed and the limits of the area to be treated. Use water blasting, sand blasting or sanding, or painting with grey paint as methods to remove graffiti.

D Measurement
The department will measure Remove Existing Graffiti by the square 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.0165.4050	Remove Existing Graffiti	SF

Payment is full compensation for performing the graffiti removal using one of the accepted methods listed above.

233. Temporary Shoring Railroad, Item SPV.0165.4060.

A Description
This special provision describes furnishing and installing temporary shoring at locations alongside railroad tracks as shown in the plan and in accordance to the shoring design requirements.

B Materials

B.1 Shoring Design

Provide an effective shoring system capable of withstanding Coopers E-80 live load surcharge, and which is in compliance with OSHA and Federal Railroad Administration (FRA) requirements. For reference, use "Guidelines for Temporary Shoring" published by Union Pacific Railroad and The Burlington Northern and Santa Fe Railway (BNSF). A copy of these guidelines may be obtained from the department at the Bureau of Railroads and Harbors, 4802 Sheboygan Avenue, Madison, Room 701. Where conflicts exist, the standard specifications, special provisions and plans shall supercede these guidelines.

Refer to standard spec 107.17.1(6) and (7) regarding the development and submittal of shop drawings, detailed plans, and computations for temporary construction near the UPRR's tracks. Include in the submitted drawings and plans the proposed method of installation and removal of the shoring not included in the contract plans. In all calculations, take into consideration railroad surcharge loading and design the shoring to meet Coopers E-80 live loading.

C Construction

The UPRR will coordinate train operations with the contractor to the extent possible, consistent with its operational requirements. The number and duration of work windows free of train operations available per day will vary depending on operational requirements. At the end of each window, leave the construction area in a condition that will allow for safe and normal train operations. Do not leave shoring extended above the top of rail within 12'-0" from the centerline of the nearest track. In May 2012, no windows per weekday of approximately any hours each and no windows per weekend day of approximately any hours existed. Train operations and available windows for work and hours available for work within windows are subject to change. Contact the following at least three working days in advance of construction operations that require implementation of the temporary shoring:

John Venice
Manager of Special Projects – Industry and Public Projects,
Engineering Department
Union Pacific Railroad Company
101 North Wacker Drive, Suite 1920
Chicago, IL 60606
Telephone: (312) 777-2043
Fax: (402) 233-2769
Email jnvenice@up.com

Provide, install and maintain adequate protection for people within the UPRR's right-of-way. Cover, guard, and/or protect all excavations, holes, or trenches within the UPRR's right-of-way when they are not being worked on. When leaving work site areas at night and over weekends, secure the areas and leave them in a condition that will ensure that railroad employees and other personnel, who may be working or passing through the

area, are protected around excavations. Install handrails that are parallel to the track and not less than 9'-0" from the centerline of the nearest track. Handrails, fences, or other barrier methods must meet OSHA and FRA requirements. Backfill all excavations as soon as possible.

Upon completion of the need for the temporary shoring, remove the shoring or cut-off the shoring 4'-6" below the top of the adjacent rail. Backfill the space that is excavated but not occupied by the new permanent construction in accordance to 206.3.13 of the standard specifications.

D Measurement

The department will measure Temporary Shoring Railroad in area by the square foot acceptably completed at locations the plans show, measured as the area of exposed face in the plane of the shoring from the ground line in front of the shoring to a maximum of 1 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 measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0165.4060	Temporary Shoring Railroad	SF

Payment is full compensation for providing a verified design of the shoring; providing shop drawings and detailed plans; furnishing and hauling materials to each location; installing the shoring; maintaining the shoring as needed; removing the shoring; and for backfilling upon completion of the need for the shoring.

Temporary shoring not required by the plans and installed for the convenience of the contractor's operations shall be considered incidental to work under this contract and will not be measured and paid for under this item.

234. Removing Loose Concrete, Item SPV.0165.4070.

A Description

This special provision describes removing vertical, horizontal and overhead deteriorated concrete on structures as shown on the plans and applying a migrating corrosion inhibitor to areas of exposed steel reinforcing and concrete. This work shall be in accordance to the pertinent parts of standard spec 517 and the details as shown in the plans.

B Materials

B.1 General

Furnish a migrating corrosion inhibitor for vertical, horizontal and overhead applications that is in accordance to the pertinent requirements of standard spec 517, and with the following typical physical properties:

- Color appearance: clear yellow viscous liquid,
- pH: 9.0 - 9.7 (neat),
- Density: 8.6 – 8.8 lb./gal. (1.03 – 1.05 kg/liter),
- Viscosity (or flow) similar to syrup and higher than water.
- Odor: slight ammonia smell.
- Non-volatile content: 20 – 27%.

Migrating corrosion inhibitor provided in this section shall conform to the requirements for each type and class of concrete required, with the following typical physical properties and requirements:

- Organic liquid,
- Water-based,
- Non-flammable,
- Non-vapor barrier,
- Non-toxic, oral LD 50 2000 g/kg maximum, or lower,
- Protects both anodic and cathodic areas,
- Does not contain calcium nitrate,
- Non-polluting after flushing or dilution,
- Non-harmful to plant life after flushing or dilution,
- Approved for potable water applications by NSF Standard 61,
- Certified for potable water applications by Underwriters laboratories
- Not carcinogenic under occupational Safety and Health Agency, NTP, or IARC,
- Seven year minimum usage experience as a migrating corrosion inhibitor,
- Confirmed effective by ASTM G – 109
- Proven effective as reported by the Strategic Highway Research Program funded by the United States of America, Department of Transportation (DOT), federal government and state DOT's.

C Construction

C.1 Preparation

Remove all deteriorated concrete. Sawcutting of edges is not needed. Concrete and adjacent surfaces shall be dry, clean, and free of all dirt, oil, grease, efflorescence, sealers, coatings, curing compounds, membranes, rubber tire marks, and asphalt. Clean surface by stream cleaning, water blasting, sandblasting, or shot blasting. Use an air compressor with water and oil trap to ensure the cleaning method does not apply materials intended for removal. Use brush, broom, sweeper, or air compressor on surfaces as final cleaning before application. Use brush, broom, sweeper, or air compressor to chase cracks as final cleaning before application. Do not apply if the ambient temperature near the applied concrete surface is expected to be below freezing water temperature within 12 hours of application.

C2. Surface Application

Use the corrosion inhibitor for vertical, horizontal or overhead surface applications. Apply the solution by spray (conventional airless or hand pressure spray equipment),

roller, squeegee, or paintbrush. Apply a rate of 150 square feet per gallon (3.7 square meters per liter). Minimal dry time is required and is usually minutes after treatment. Use of concrete substrate, such as for traffic, may resume when treatment is dry to touch.

D Measurement
The department will measure Removing Loose Concrete by the square 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.0165.4070	Removing Loose Concrete	SF

Payment is full compensation for concrete removal and disposal, cleaning preparation, furnishing, and applying the product.

235. Turf Pavers, Item SPV.0165.7001

A Description
This work consists of installing turf pavers, placing geotextile fabric, placing crushed aggregate base, placing sand leveling bed and filling voids with crushed red granite.

B Materials
Concrete pavers shall be a permeable unit designed specifically with openings to allow for grass or crushed aggregate infill for porosity. Porosity of pavers shall be 40-45% open space.

Minimum paver size 23 inches long by 15 inches wide by 3 inches thick

Material standards - American Society of Testing Materials (ASTM)

- C 1319, Standard Specification for Concrete Grid Paving Units.
- C 140, Standard Test Methods of Sampling and Testing Concrete.

Provide only sound units free of defects that would interfere with proper placing of units or impair strength or performance of construction. Minor chipping incidental to methods of manufacture, handling in shipment, and delivery are subject to engineer's review and approval. Excessive cracks and chipping, as determined by the engineer will be rejected as not complying with specification requirements.

Bedding material: Base Aggregate Dense ¾", standard spec 305.

Leveling Material: Clean course masonry sand.

Void Fill: Wisconsin crushed red granite with ¼" diameter, with fines.

Geotextile fabric: Type DF

Turf paver color: Contractor to provide color sample for approval by the engineer.

Contractor shall submit shop (manufacture) drawings of product and product data for approval by the engineer before ordering product. Submit sample of concrete grid paving unit in the size and shape proposed.

C Construction

Contractor shall have successfully completed installations similar in type and size to this project. Contractor shall provide proof of experience for a minimum of one project, including photographs and location of previous project(s).

Deliver concrete turf pavers to the site in banded or wrapped bundles. Delivery of loose turf pavers will not be accepted. Unload turf pavers at job site in such a manner that no damage occurs to the product.

Place geotextile fabric over Base Aggregate after compacting. Cut to fit around existing features. Overlap geotextile fabric 6" when joining pieces.

Spread leveling sand evenly over geotextile fabric, for the entire area to be paved or a minimum area of 200 square feet. Screed sand leveling course to a level 2" below turf paver finished grade to allow for settling during vibration. Protect leveling course from damage until turf pavers are placed and have been set by vibration.

Lay turf pavers in the patterns shown on the plans and in the details.

Turf pavers shall be laid "hand tight" in such a manner that the desired pattern is maintained and the joints between the turf pavers do not exceed 1/16". Where turf pavers abut concrete curb and or sidewalk, the gaps at the edges of the paved surfaces shall be filled with stones to maintain pattern and cut to fit tightly. Turf pavers shall be cut to a straight, even surface without cracks or chips to fit closely around existing surface features. Cut turf pavers with a wet diamond masonry saw.

Do not install sand or pavers during heavy rain, snow or when ground is frozen. Do not install frozen sand or topsoil.

Remove and dispose of all excess material from site.

D Measurement

The department will measure Turf Pavers by the square 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.0165.7001	Turf Pavers	SF

Payment is full compensation for furnishing and installing turf pavers, gravel setting bed, masonry sand, geotextile fabric, crushed red granite; and for removing and disposing of excess materials.

236. Concrete Pavement 8-Inch Special, Item SPV.0180.0010.

A Description

This special provision describes placing colored concrete. Placement, forming, and aggregate of the concrete shall be in accordance to the pertinent requirements of standard spec 415, 416 and 501, in accordance to the details as shown on the plans, and as hereinafter provided.

B Materials

At least 15 working days prior to the start of colored concrete installation supply one 2-foot x 2-foot panel sample of the colored concrete with the proposed broom finish and troweled edge. The final color and finish is to be approved by the City of Wauwatosa, Mr. William Wehrley at (414) 479-8929 prior to placement of any colored concrete in the field.

The accepted sample shall be the standard of finish for all colored concrete work within the project.

The concrete shall be grade A2 or grade A-FA as specified in standard spec 501. All colored concrete shall originate from the same batch plant.

C Construction

Concrete shall be placed by installers experienced with colored, broom finished concrete.

Concrete pavement shall match the visual appearance of the approved sample. Concrete pavement not conforming to the color and finish of the approved sample shall be replaced at the contractor's expense.

Tie the pavement to adjacent Concrete Pavement 8-Inch using No. 4 tie bars spaced 2'-0" center to center.

C.1 Color Admixture

Use integral color admixture material specifically designed for coloring concrete.
Blend admix at plant per manufacturers specifications to achieve the indicated color. Color admixtures manufacturer and colors include:

Solomon Color – Brick 417
Schofield System – Quarry Red C-32
Davis Colors – Brick Red 160

Or approved equal

C.2 Finish
Finish shall be a medium brushed (broom) finish with a 6-inch smooth troweled finish as shown in the plans.

D Measurement
The department will measure Concrete Pavement 8-Inch Special in area 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.0180.0010	Concrete Pavement 8-Inch Special	SY

Payment is full compensation for installation of colored concrete; excavating and preparing the foundation; providing all materials, including concrete, and expansion joints; placing, finishing, protecting and curing concrete; and for preparing sample panels.

237. Geotextile Fabric Type FF, Item SPV.0180.0011.

A Description
This special provision describes furnishing, installing and removing geotextile fabric and fabric hold down systems for filtering storm water, as shown in the plans and as hereinafter provided.

B Materials
Furnish type FF geotextile fabrics conforming to standard spec 645.2.1 except use a woven polypropylene fabric. Furnish type FF geotextile fabrics selected from the department's erosion control product acceptability list (PAL). Obtain copies of the erosion control PAL and prequalification procedure from the Bureau of Technical Services.

C Construction
Meet the pertinent requirements as set forth in standard spec 645.3 and as follows:

Install in accordance to the plan details for the intended use in such a manner to preclude ripping and tearing of the fabric, or otherwise rendering the fabric or assembly ineffective for its intended use.

D Measurement
The department will measure Geotextile Fabric Type FF by the square yard of surface area of the fabric, 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.0180.0011	Geotextile Fabric Type FF	SY

Payment is full compensation for furnishing, transporting, installing and removing the fabric and fabric hold down systems.

238. Excavation, Hauling, and Disposal of VOC-Contaminated Soil, Item SPV.0195.0010.

A Description

A.1 General

This special provision describes excavating, loading, hauling, and disposing of chlorinated volatile organic compound (VOC) contaminated soil at a DNR approved landfill. The closest DNR approved bioremediation and landfill facilities are:

Waste Management Orchard Ridge Recycling and Disposal Facility
W124 N9355 Boundary Rd
Menomonee Falls, WI 53051-1602
(262) 253-8620

Veolia Emerald Park Landfill
W124 S10629 124th Street
Muskego, WI 53150
(414) 529-1360

Perform this work in accordance 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 and Groundwater 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 and groundwater is present at the following locations as shown on the plans:

- STH 100 Station 625SS+50 to 627SS+00, from reference line to project limits left from approximately 7.5 to 10.5 feet bgs. Approximately 300 cubic yards (approximately 500 tons at an estimated 1.7 tons per cubic yard) of soil to be excavated from this area for storm sewer installations will require landfill disposal.

If contaminated soils are encountered elsewhere on the project, terminate excavation activities in the area and notify the engineer.

For further information regarding previous investigation and remediation activities at these sites contact:

Name:	Michael Cape, P.G.
Address:	141 NW Barstow Street, Waukesha, WI 53187-0798
Phone:	(262) 548-5930
Fax:	(262) 548-6891
e-mail:	michael.cape@dot.state.wi.us

A.3 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:	Mr. Ken Yass or Mr. Tyler Stapel
Phone:	(262) 901-2145 or (262) 825-2045
Fax:	(262) 879-1220
E-mail:	kyass@trcsolutions.com or wstapel@trcsolutions.com

The role of the environmental consultant will be limited to:

- 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;
- Identifying contaminated soils to be hauled to the bioremediation facility or landfill;
- 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
- Obtaining the necessary approvals for treatment and disposal of petroleum-contaminated soil from the bioremediation facility and for disposal of VOC-contaminated soil at the landfill.

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 approved bioremediation facility that will be used for disposal of petroleum-contaminated soils and landfill for disposal of VOC-contaminated soil, and provide this information to the environmental consultant at the preconstruction conference. The environmental consultant will be responsible for obtaining the necessary approvals for treatment and disposal of contaminated soils. Do not transport contaminated soil offsite without prior approval from the environmental consultant.

A.4 Health and Safety Requirements
Supplement standard spec 107.1 with the following:

During excavation activities, expect to encounter soil contaminated with diesel fuel, fuel oil, trichloroethylene, dichloroethylene 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 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. Minimize the amount of open trenches, construct diversion berms, and implement other controls to minimize the infiltration of surface water into excavations in areas of known contamination.

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 approximately one sample for every 15 cubic yards excavated.

Directly load and haul soils identified above to the DNR approved bioremediation facility or landfill facility designated by the environmental consultant. 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 bioremediation so as not to contain free liquids.

If dewatering is required in areas of known contamination, water generated from dewatering activities may, with approval of 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 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 this construction project.

D Measurement

The department will measure Excavation, Hauling, and Disposal of VOC Contaminated Soil in tons of contaminated soil accepted by the bioremediation facility and landfill as documented by weight tickets generated by the bioremediation facility and landfill.

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	Excavation, Hauling, and Disposal of VOC-Contaminated Soil	Ton

Payment is full compensation for excavating, segregating, loading, hauling, and treatment via bioremediation or landfill disposal of contaminated soil; obtaining solid waste collection and transportation service operating licenses; paying all tipping fees and taxes, assisting in the collection soil samples for field evaluation; and for dewatering of soils prior to transport, if necessary.

239. Base Aggregate Open Graded Special, Item SPV.0195.4010.

A Description

This special provision describes installing open graded base as backfill material in areas shown on the plans between the tunnel extensions and/or adjacent retaining walls and precast deadmen, and on top of the tunnel roof in accordance to standard spec 310, except as hereinafter modified.

B Materials

Furnish Base Aggregate Open Graded aggregate material conforming to standard spec 310.

Furnish natural sand, where applicable, conforming to standard spec 210.

C Construction

Before placing Base Aggregate Open Graded aggregate material on top of or against covered tunnel waterproofing, install a 6" sand layer or protection board or other protective course as noted in the plans and approved by the covered tunnel waterproofing manufacturer. Compact the sand, where used, using the same procedures given in the next paragraph, except modify the number of passes to protect the covered tunnel waterproofing per the manufacturer's recommendations.

The compaction of the base aggregate open graded material must be generally compacted using Standard Compaction procedures per standard spec 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 shall be performed with 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. 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 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 new tunnel walls only; compacted material placed over the existing tunnel need not be tested. Test the portion of material passing the No. 10 sieve and compact using similar procedures described above for field compaction until no further visual densification is observed.

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.0195.4010	Base Aggregate Open Graded Special	TON

Payment is full compensation for preparing the foundation; and for stockpiling, placing, shaping, compacting, and maintaining the base, including the 6 inch sand layer, if used. Protection board or other protective course, if used, will be paid for separately under Covered Tunnel Waterproofing. 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.

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 __6__ *(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 __6__ *(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 Development. This item shall consist of concerted efforts by the contractor as part of its affirmative action responsibilities to train and develop minority business enterprises to become fully qualified contractors in the transportation construction field. Hereafter, minority business enterprise refers to businesses owned or controlled by socially and economically disadvantaged person(s) as certified by the Wisconsin Department of Transportation. It is the intention of this provision that firms owned and controlled by women be included as a presumptive group within the definition of Disadvantaged Business Enterprise (DBE).

The contractor will aggressively solicit DBE subcontractor and/or supplier quotes and incorporate them in its bid for work on this project by making systematic written and verbal contact with DBEs likely to have an interest in transportation construction work.

In this contract, the contractor shall procure services, materials, or subcontract the minimum percentage as shown on the cover of the Highway Work Proposal of the total amount bid to one or more certified DBEs. The Department maintains and furnishes the list of DBEs considered certified. If the proposed DBE is uncertified, the contractor must appeal to the Department to establish the eligibility of the DBE to become certified. This goal may be accomplished through the use of any combination of ethnic or women owned businesses certified as DBEs by the Department.

It is the intent of this specification that the percentage goal specified be fulfilled as indicated. However, if the contractor considers such fulfillment to be impossible of attainment, and if the contractor can demonstrate to the satisfaction of the Department that such utilization is not feasible, the Department may accept a varying percentage in lieu of the designated percentage for the DBE classification.

The contractor is encouraged to develop DBEs in areas of construction where these firms have traditionally been non-competitive. Therefore, the DBE goal on this contract may be reduced by the Department up to 50 percent for DBE work in the non-traditional construction categories of: concrete paving, asphalt paving, excavating and heavy grading, aggregate production, structures and major culvert installation. Any goal reduction is discretionary by the Department and will only be granted where it is clear the intended work will benefit the development and experience of the DBE.

Credit toward the required DBE goal is allowed for supplies and materials furnished by DBEs. However, the DBEs must assume the actual contractual responsibilities for furnishing the supplies and materials and also manufacture them. For these purposes, a manufacturer is a supplier that either produces goods from raw materials or substantially alters them before resale. When the supplier is not the manufacturer, only 60 percent of the expenditure to the supplier may be credited toward the DBE goal, provided the supplier performs a commercially useful function in the transaction.

Nevertheless, in order for the Department to execute a contract with a bidder that has failed to meet the specified DBE contract goal, the Department must determine that the bidder's good faith efforts were those that, given all relevant circumstances, a bidder activity and aggressively seeking to meet the goal would make.

Good faith efforts are to include contacts with the Department's Office of Disadvantaged Business Programs. In determining whether a contractor has made good faith efforts, the Department will usually look not only at the different kinds of efforts that the bidder has made, but also the quantity and intensity of those efforts. Efforts that are merely pro forma are not good faith efforts to meet the goal. Even if the efforts are sincerely motivated, they are not considered to be good faith efforts if, given all relevant circumstances, they could not

reasonably be expected to produce a level of DBE participation sufficient to meet the goal.

Within ten working days after the notification of contract award, the contractor is to identify, by name, the DBE firms whose utilization is intended to satisfy this provision, the items of work of the subcontract or supply agreement and the dollar amount of such items of work. Failure by the contractor to furnish the necessary information within the specified time frame does not negate the Department's right to award and execute the contract; however, good faith efforts after the submittal requirement will be discounted. Delay in fulfilling this requirement shall not constitute a cause for extension of the contract time. All other aspects of this minority business enterprise requirement shall be in accordance with appropriate provisions of Part 26 of Volume 49 of the Code of Federal Regulations entitled "Participation by Minority Business Enterprises in Department of Transportation Programs."

The contractor shall also provide or arrange for direct assistance to the DBEs in such areas as providing information to prepare intelligent quotations, insuring that the DBE can read and understand highway plans, assisting in reaching a full understanding of the Standard Specifications and contract requirements applicable to the DBE portion of the work, appropriate cost accounting and other business practices, and other actions aimed at continued development of the DBE into a viable highway contracting business.

The contractor shall maintain records and may be required to furnish periodic reports documenting its performance under this item.

The work herein prescribed will not be paid for separately, but will be considered incidental to other items of work included in the contract.

Failure on the part of the bidder to meet the DBE goal and to meet an adequate level of good faith efforts will, at the discretion of the Department, be deemed failure to execute the contract, be just cause of the cancellation of the award, and such other actions as deemed appropriate.

The entire provisions of this item do not apply if the bidder, excluding joint ventures, is a certified DBE.

ADDITIONAL SPECIAL PROVISION 4

Payment to all Subcontractors. Within 10 calendar days of receipt by a contractor of a progress payment for work performed, materials furnished, or materials stockpiled by a subcontractor, the contractor shall pay that subcontractor for all work satisfactorily performed and for all materials furnished or stockpiled.

The contractor agrees further to release retainage amounts to each subcontractor within 10 calendar days after the subcontractor's work is satisfactorily completed. In addition, whenever the Department reduces the contract retainage amount, within 10 calendar days of receipt by a contractor of a retainage payment, the contractor must reduce the total amount retained from subcontractors to no more than remains retained by the Department.

The contractor shall pay the subcontractor within the time frames described above unless the contractor complies with both of the following within 10 calendar days of receiving the Department's progress payment:

1) The contractor notifies the subcontractor in writing that the work is not satisfactorily completed.
2) The contractor requests approval from the Department to delay payment because the subcontractor has not satisfactorily completed the work.

The contractor's request for approval should include the written notification to the subcontractor and shall provide sufficient documentation of good cause to assist the engineer in making a timely decision. If the engineer does not grant approval, the contractor shall pay the subcontractor within 10 calendar days of the Department's decision.

All subcontracting agreements made by a contractor shall include the above provisions and shall be binding on all contractors and subcontractors.

The contractor certifies compliance with the requirements of this Additional Special Provision by signing the contract. This clause applies to both DBE and non-DBE subcontractors.

ADDITIONAL SPECIAL PROVISIONS 5

Fuel Cost Adjustment

A Description

Fuel Cost Adjustments will be applied to partial and final payments for work items categorized in Section B as a payment to the contractor or a credit to the department. ASP-5 shall not apply to any force account work.

B Categories of Work Items

The following items and Fuel Usage Factors shall be used to determine Fuel Cost Adjustments:

(1) Earthwork.		Unit	Gal. Fuel Per Unit
205.0100	Excavation Common	CY	0.23
205.0200	Excavation Rock	CY	0.39
205.0400	Excavation Marsh	CY	0.29
208.0100	Borrow	CY	0.23
208.1100	Select Borrow	CY	0.23
209.0100	Backfill Granular	CY	0.23
350.0102	Subbase	CY	0.28
350.0104	Subbase	Ton	0.14
350.0115	Subbase 6-Inch	SY	0.05
350.0120	Subbase 7-Inch	SY	0.05
350.0125	Subbase 8-Inch	SY	0.06
350.0130	Subbase 9-Inch	SY	0.07
350.0135	Subbase 10-Inch	SY	0.08
350.0140	Subbase 11-Inch	SY	0.09
350.0145	Subbase 12-Inch	SY	0.09
SPV.0195.0010	Excavation Hauling and Disposal of VOC-Contaminated Soil	Ton	0.12

C Fuel Index

A Current Fuel Index (CFI) in dollars per gallon will be established by the Department of Transportation for each month. The CFI will be the price of No. 2 fuel oil, as reported in U.S. Oil Week, using the first issue dated that month. The CFI will be the average of prices quoted for Green Bay, Madison, Milwaukee and Minneapolis.

The base Fuel Index (BFI) for this contract is $2.90 per gallon.

D Computing the Fuel Cost Adjustment

The engineer will compute the ratio CFI/BFI each month. If the ratio falls between 0.85 and 1.15, inclusive, no fuel adjustment will be made for that month. If the ratio is less than 0.85 a credit to the department will be computed. If the ratio is greater than 1.15 additional payment to the contractor will be computed. Credit or additional payment will be computed as follows:

(1) The engineer will estimate the quantity of work done in that month under each of the contract items categorized in Section B.

(2) The engineer will compute the gallons of fuel used in that month for each of the contract items categorized in Section B by applying the unit fuel usage factors shown in Section B.

(3) The engineer will summarize the total gallons (Q) of fuel used in that month for the items categorized in Section B.

(4) The engineer will determine the Fuel Cost Adjustment credit or payment from the following formula:

$$FA = \left(\frac{CFI}{BFI} - 1 \right) x\ Q\ x\ BFI$$

(plus is payment to contractor; minus is credit to the department)

Where	FA	=	Fuel Cost Adjustment (plus or minus)
	CFI	=	Current Fuel Index
	BFI	=	Base Fuel Index
	Q	=	Monthly total gallons of fuel

E Payment

A Fuel Cost Adjustment credit to the department will be deducted as a dollar amount each month from any sums due to the contractor. A Fuel Cost Adjustment payment to the contractor will be made as a dollar amount each month.

Upon completion of the work under the contract, any difference between the estimated quantities and the final quantities will be determined. An average CFI, calculated by averaging the CFI for all months that fuel cost adjustment was applied, will be applied to the quantity differences. The average CFI shall be applied in accordance with the procedure set forth in Section D.

ADDITIONAL SPECIAL PROVISION 6
MODIFICATIONS TO THE STANDARD SPECIFICATIONS

Make the following revisions to the 2013 edition of the standard specifications:

106.3.4.3.1 General

Replace paragraph two with the following effective with the November 2012 letting:

(2) Required sampling and testing methodologies and documentation are specified in CMM chapter 8.

(3) If disputed, approval of materials and components, as well as acceptance of the work incorporating those materials or components, is subject to review under the QMP dispute resolution process.

107.17.3 Railroad Insurance Requirements

Replace the entire text with the following effective with the August 2012 letting:

(1) If required by the special provisions, provide or arrange for a subcontractor to provide railroad protective liability insurance in addition to the types and limits of insurance required in 107.26. Keep railroad protective liability insurance coverage in force until completing all work, under or incidental to the contract, on the railroad right of way or premises of the railroad and until the department has accepted the work as specified in 105.11.2.4.

(2) Provide railroad protective liability insurance coverage written as specified in 23 CFR part 646 subpart A. Provide a separate policy for each railroad owning tracks on the project. Ensure that the railroad protective liability insurance policies provide the following minimum limits of coverage:

1. Coverage A, bodily injury liability and property damage liability; $2 million per occurrence.
2. Coverage B, physical damage to property liability; $2 million per occurrence.
3. An annual aggregate amount of $6 million that shall apply separately to each policy renewal or extension.

(3) Obtain coverage from insurance companies licensed to do business in Wisconsin that have an A.M. Best rating of A- or better. The cost of providing the required insurance coverage and limits is incidental to the contract. The department will make no additional or special payment for providing insurance.

(4) Submit the following to each railroad owning tracks on the project as evidence of that railroad's respective coverage:

1. A certificate of insurance for the types and limits of insurance specified in 107.26.
2. The railroad protective liability insurance policy or other acceptable documentation to the railroad company.

(5) Submit the following to the region as evidence of the required coverage:

1. A copy of the letter to the railroad company transmitting the submittal documents specified in 107.17.3(4).
2. A certificate of insurance for the required railroad protective liability coverages.

(6) Do not begin work on the right of way or premises of the railroad company until the region receives the submittals specified in 107.17.3(5) and notification from the railroad company that the contractor has provided sufficient insurance information to begin work.

(7) Notify the railroad and the region immediately upon cancellation or initiating cancellation, whichever is earlier, or any material change in coverage. Cease operations within 50 feet of the railroad right of way immediately if insurance is cancelled or reduced. Do not resume operations until the required coverage is in force.

460.2.8.3.1.4 Department Verification Testing Requirements

Replace paragraph four with the following effective with the December 2012 letting:

(4) The department will randomly test each design mixture at the following minimum frequency:

FOR TONNAGES TOTALING:	
Less than 501 tons	no tests required
From 501 to 5,000 tons	one test
More than 5,000 tons	add one test for each additional 5,000-ton increment

506.3.22 Shop Inspection

Replace paragraph one with the following effective with the July 2010 letting:

(1) The engineer or an independent inspection agency under department contract may inspect all structural steel and miscellaneous metals furnished. The department will provide the contractor with monthly consultant inspection invoices and identify any quality deficiencies at the fabrication facility.

506.5 Payment

Add paragraph nine as follows effective with the June 2010 letting:

(9) The department will limit costs for inspections conducted under 506.3.2 to $0.05 per pound of material and deduct costs in excess of that amount from payment due the contractor. The department will determine costs for in-house inspections based on hourly rates for department staff plus overhead and use invoiced costs for contracted-out inspections. The department will administer deductions for the contractor's share of the total inspection cost under the Excess Costs For Fabrication Shop Inspection administrative item.

507.2.2.1 General

Replace paragraph four with the following effective with the December 2012 letting:

(4) Ensure that there are no unsound knots or knot holes. Also ensure that there are no tight knots of a diameter exceeding one-quarter of the greater dimension at the point where they occur. Measure a knot by taking its diameter at right angles to the length of the timber. Ensure that the sum of sizes of all knots in any one-foot length does not exceed 2 times the size of the largest allowed single knot. The engineer will treat cluster knots as if they were a single knot. A cluster knot is 2 or more knots grouped together, with the fibers of the wood deflected around the entire unit.

512.3.1 Driving and Cutting Off

Replace the entire text with the following effective with the December 2012 letting:

512.3.1.1 General

(1) Coordinate driving operations to prevent damage or displacement of concrete in substructure units or damage to adjacent facilities due to vibrations.

(2) Drive sheeting with a variation of 1/4 inch or less per foot from the vertical or from the batter the plans show. Ensure that the sheetpiles are within 6 inches of the plan position after driving. Do not damage sheetpiles attempting to correct for misalignment.

(3) Remove and replace, or otherwise correct, sheetpiles the engineer deems unacceptable under 105.3. Submit details of planned corrections to the engineer for review and approval before initiating any corrective actions.

(4) Drive sheetpiles to or beyond the required tip elevation the plans show.

512.3.1.2 Driving System

(1) Furnish a sheetpile driving system capable of driving the sheetpiles to the required minimum tip elevation the plans show.

(2) The engineer may order the contractor to remove a pile driving system component from service if it causes insufficient energy transfer or damages the sheetpiles. Do not return a component to service until the engineer determines that it has been satisfactorily repaired or adjusted.

(3) Drive sheetpiles with diesel, air, steam, gravity, hydraulic, or vibratory hammers.

512.3.1.3 Cut-Offs

(1) Cut off sheetpiles at the elevations the plans show or as the engineer directs. Pile cut-offs become the property of the contractor. Dispose of cut-offs not incorporated into the work.

614.2.5 Wood Posts and Offset Blocks

Retitle and replace the entire text with the following effective with the July 2012 letting:

614.2.5 Posts and Offset Blocks

614.2.5.1 Wood Posts and Offset Blocks

(1) Furnish sawed posts and offset blocks of one of the following species:

Douglas fir	Southern pine	Ponderosa pine	Jack pine	White pine
Red pine	Western hemlock	Western larch	Hem-fir	Oak

(2) Ensure that posts are the size the plans show and conform to the nominal and minimum dimensions tabulated in 507.2.2.3. The contractor does not have to surface the posts. Provide posts of the net length the plans show after setting and cut off.

(3) Use stress graded posts rated at 1200 psi f_b or higher. Determine the stress grade rating for douglas fir, western larch, and southern pine as specified in 507.2.2.4.

(4) For hem-fir, hemlock, red pine, white pine, jack pine, ponderosa pine, and oak conform to the following:

TABLE 614-1 PROPERTIES FOR WOOD POSTS AND BLOCKS

SPECIES			WESTERN HEMLOCK, HEM-FIR, RED PINE, WHITE PINE, JACK PINE, PONDEROSA PINE		OAK	
MAXIMUM SLOPE OF GRAIN			1 in 15		1 in 12	
NOMINAL WIDTH OF FACE			6"	8"	6"	8"
SHAKES, CHECKS, AND SPLITS		GREEN	1"	1 3/8"	2 3/8"	3 1/8"
		SEASONED	1 1/2"	2"	2 5/8"	3 1/2"
MAXIMUM WANE			1"	1 3/8"	1 1/8"	1 5/8"
MAXIMUM ALLOWABLE KNOTS	NARROW FACE	MIDDLE 1/3 OF LENGTH	1 3/8"	1 5/8"	2 1/8"	2 3/8"
		END[1]	2 3/4"	3 1/4"	4 1/4"	4 3/4"
		SUM IN MIDDLE 1/2 OF LENGTH[2]	11"	13"	17"	19
	WIDE FACE	EDGE KNOT N MIDDLE 1/3 OF LENGTH	1 3/8"	1 5/8"		
		EDGE KNOT AT END[1]	2 3/4" 7	3 1/4"		
		CENTERLINE	1 3/8"	1 7/8"	2 1/4"	2 7/8"
		SUM IN MIDDLE 1/2 OF LENGTH	5 1/2"	7 1/2"	9"	11 1/2"

[1] But do not exceed the maximum allowable knot on the centerline of the wide face of the same piece.

[2] But do not exceed 4 times the maximum allowable knot on the centerline of the wide face of the same piece.

(5) Pressure treat posts and offset blocks as specified in 507.2.2.6. Use one of the oil-soluble preservatives or chromated copper arsenate conforming to 507.2.3. Use the same material for offset blocks and posts and treat material used in each continuous installation with the same type of preservative.

614.2.5.2 Steel Posts

(1) Furnish steel posts conforming to AASHTO M270 Grade 36 and galvanized according to AASTHO M111.

614.2.5.3 Plastic Offset Blocks

(1) Furnish plastic offset blocks from the department's approved products list.

614.3.1 General

Replace the entire text with the following effective with the July 2012 letting:

(1) Paint the ends of cut-off galvanized posts, rail, bolts, cut or drilled surfaces of galvanized components, and areas of damaged zinc coating with 2 coats of zinc dust/zinc oxide paint. Clean the damaged and adjacent areas thoroughly before applying paint.

(2) Apply 2 coats of wood preservative to cut surfaces of wood components. Use the same preservative originally used to treat that component or use a 2-percent solution of copper naphthenate conforming to AWPA Standard P8 or P36.

614.3.2.1 Installing Posts

Replace paragraph four with the following effective with the July 2012 letting:

(4) Cut post tops to the finished elevation the plans show.

628.2.13 Rock Bags

Replace paragraph one with the following effective with the November 2012 letting:

(1) Furnish rock bags made of a porous, ultraviolet resistant, high-density polyethylene or geotextile fabric that will retain 70% of its original strength after 500 hours of exposure according to ASTM D4355 and a minimum in-place filled size of 18-inches long by 12-inches wide by 6-inches high. Ensure that the fabric conforms to the following:

TEST REQUIREMENT	METHOD	VALUE
Minimum Tensile	ASTM D4632	
Machine direction		70 lb minimum
Cross direction		40 lb minimum
Elongation	ASTM D4632	
Machine direction		20% minimum
Cross direction		10 % min
Puncture	ASTM 4833	65 lbs minimum
Minimum Apparent Opening		0.0234 inches (No. 30 sieve)
Maximum Apparent Opening		0.0787 inches (No. 10 sieve)

701.4.2 Verification Testing

Replace paragraph two with the following effective with the December 2012 letting:

(2) The department will sample randomly at locations independent of the contractor’s QC tests and use separate equipment and laboratories. The department will conduct a minimum of one verification test for each 5 contractor QC tests unless specific QMP provisions specify otherwise.

715.3.1.3 Department Verification Testing

Replace paragraph one with the following effective with the December 2012 letting:

(1) The department will perform verification testing as specified in 701.4.2 except as follows:

- Air content, slump, and temperature: a minimum of 1 verification test per lot.
- Compressive strength: a minimum of 1 verification test per lot.

Errata

Make the following corrections to the 2012 edition of the standard specifications:

107.22 Contractor's Responsibility for Utility Facilities, Property, and Services

Correct errata by eliminating references to the department. Costs are determined by statute.

(3) If the contractor damages or interrupts service, the contractor shall notify the utility promptly. Coordinate and cooperate with the utility in the repair of the facility. Determine who is responsible for repair costs according to Wisconsin statutes 66.0831 and 182.0175(2).

506.2.6.5.2 Pad Construction

Correct errata by changing ASTM A570 to ASTM A1011.

(4) For the internal steel plates use rolled mild steel conforming to ASTM A36, or ASTM A1011 grade

512.3.3 Painting

Correct errata by changing 511.3.5 to 550.3.11.3.

(1) Paint permanent steel sheet piling as specified for painting steel piling in 550.3.11.3.

513.2.2.8 Toggle Bolts

Correct errata by changing r ASTM A570 to ASTM A1011.

(1) Use toggle bolts made of steel, conforming to the plans. Make the assembly from the material specified below:

Toggle bolt and pin	Cold finished steel heat-treated Brinell 311-363 ASTM A354.
Toggle washer	Hot rolled steel ASTM A1011. Manufacturer's standard washer.
Spacer nut	Grade 1213, ASTM A108. Cold finished steel heat-treated ASTM A325.

660.2.1 General

Correct errata by changing section 511 to 550.

(1) Furnish materials conforming to the following:

Concrete	section 501
Concrete bridges	section 502
Luminaires	section 659
Steel piling	section 550
Steel reinforcement	section 505

660.3.2.3 Pile Type Foundations

Correct errata by changing section 511 to 550.

(1) Drive piles as specified in for steel piling in section 550.

ADDITIONAL SPECIAL PROVISION 7

A. Reporting 1st Tier and DBE Payments During Construction

1. Comply with reporting requirements specified in the department's Civil Rights Compliance, Contractor's User Manual, Sublets and Payments.
2. Report payments to all DBE firms within 10 calendar days of receipt of a progress payment by the department or a contractor for work performed, materials furnished, or materials stockpiled by a DBE firm. Report the payment as specified in A(1) for all work satisfactorily performed and for all materials furnished or stockpiled.
3. Report payments to all first tier subcontractor relationships within 10 calendar days of receipt of a progress payment by the department for work performed. Report the payment as specified in A(1) for all work satisfactorily performed.
4. All tiers shall report payments as necessary to comply with the DBE payment requirement as specified in A(2).
5. Require all first tier relationships, DBE firms and all other tier relationships necessary to comply with the DBE payment requirement in receipt of a progress payment by contractor to acknowledge receipt of payment as specified in A(1), (2), (3) and (4).
6. All agreements made by a contractor shall include the provisions in A(1), (2), (3), (4) and (5), and shall be binding on all first tier subcontractor relationships and all contractors and subcontractors utilizing DBE firms on the project.

B. Costs for conforming to this special provision are incidental to the contract.

ADDITIONAL SPECIAL PROVISION 9
Electronic Certified Payroll Submittal

(1) Use the department's Civil Rights Compliance System (CRCS) to submit certified payrolls electronically. Details are available online through the department's highway construction contractor information (HCCI) site on the Labor, Wages, and EEO Information page at: http://roadwaystandards.dot.wi.gov/hcci/labor-wages-eeo/index.shtm

(2) Ensure that all tiers of subcontractors, as well as all trucking firms, submit their weekly certified payrolls electronically through CRCS. These payrolls are due within seven calendar days following the close of the payroll period. Every firm providing physical labor towards completing the project is a subcontractor under this special provision.

(3) Upon receipt of contract execution, promptly make all affected firms aware of the requirements under this special provision and arrange for them to receive CRCS training as they are about to begin payrolls. The department will provide training either in a classroom setting at one of our regional offices or by telephone. Contact Tess Mulrooney at 608-267-4489 to schedule the training.

(4) The department will reject all paper submittals of forms DT-1816 and DT-1929 for information required under this special provision. All costs for conforming to this special provision are incidental to the contract.

(5) Firms wishing to export payroll data from their computer system into CRCS should have their payroll coordinator send several sample electronic files to Tess two months before a payroll needs to be submitted. Not every contractor's payroll system is capable of producing export files. For details, see section 3.2 of the CRCS System Background Information manual available online on the Labor, Wages, and EEO Information page at: http://roadwaystandards.dot.wi.gov/hcci/labor-wages-eeo/docs/crc-basic-info.pdf

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Compliance with Governmentwide Suspension and Debarment Requirements
XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;
(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

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

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

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

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

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

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

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

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

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

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

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

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

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

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

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

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

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

SEPTEMBER 2002

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

1. The Offeror's or Bidder's attention is called to the "Employment Practices" and "Equal Opportunity Clause" set forth in the Required Contract Provisions, FHWA 1273.

2. The goals and timetables for minority and female participation expressed in percentage terms for the contractor's aggregate work force in each trade, on all construction work in the covered area, are as follows:

Goals for Minority Participation for Each Trade:

County	%	County	%	County	%
Adams	1.7	Iowa	1.7	Polk	2.2
Ashland	1.2	Iron	1.2	Portage	0.6
Barron	0.6	Jackson	0.6	Price	0.6
Bayfield	1.2	Jefferson	7.0	Racine	8.4
Brown	1.3	Juneau	0.6	Richland	1.7
Buffalo	0.6	Kenosha	3.0	Rock	3.1
Burnett	2.2	Kewaunee	1.0	Rusk	0.6
Calumet	0.9	La Crosse	0.9	St. Croix	2.9
Chippewa	0.5	Lafayette	0.5	Sauk	1.7
Clark	0.6	Langlade	0.6	Sawyer	0.6
Columbia	1.7	Lincoln	0.6	Shawano	1.0
Crawford	0.5	Manitowoc	1.0	Sheboygan	7.0
Dane	2.2	Marathon	0.6	Taylor	0.6
Dodge	7.0	Marinette	1.0	Trempealeau	0.6
Door	1.0	Marquette	1.7	Vernon	0.6
Douglas	1.0	Menominee	1.0	Vilas	0.6
Dunn	0.6	Milwaukee	8.0	Walworth	7.0
Eau Claire	0.5	Monroe	0.6	Washburn	0.6
Florence	1.0	Oconto	1.0	Washington	8.0
Fond du Lac	1.0	Oneida	0.6	Waukesha	8.0
Forest	1.0	Outagamie	0.9	Waupaca	1.0
Grant	0.5	Ozaukee	8.0	Waushara	1.0
Green	1.7	Pepin	0.6	Winnebago	0.9
Green Lake	1.0	Pierce	2.2	Wood	0.6

Goals for female participation for each trade: 6.9%

These goals are applicable to all the contractor's construction work, (whether or not it is federal or federally assisted), performed in the covered area. If the contractor performs construction work in the geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The contractor's compliance with the Executive Order and the Regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order and the Regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of $10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor, employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

   As referred to in this section, the Director means:

   Director
   Office of Federal Contract Compliance Programs
   Ruess Federal Plaza
   310 W. Wisconsin Ave., Suite 1115
   Milwaukee, WI 53202

   The "Employer Identification Number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

4. As used in this notice, and in the contract resulting from solicitation, the "covered area" is the county(ies) in Wisconsin to which this proposal applies.

APRIL 2012

ADDITIONAL FEDERAL-AID PROVISIONS

BUY AMERICA

All steel and iron materials permanently incorporated in this project shall be domestic products and all manufacturing and coating processes for these materials 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.

Upon completion of the project certify to the engineer, in writing using department form WS4567, that all steel, iron, and coating processes for steel or iron incorporated into the contract work conform to these Buy America provisions. Attach a list of exemptions and their associated costs to the certification form. Department form WS4567 is available at:

http://roadwaystandards.dot.wi.gov/standards/forms/hidden/ws4567.doc

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 with September 2004 Letting

WISCONSIN DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS AND TRANSPORTATION FACILITIES

SUPPLEMENTAL REQUIRED CONTRACT PROVISIONS

I. Wage Rates, Hours of labor and payment of Wages
II. Payroll Requirements
III. Postings at the Site of the Work
IV. Affidavits
V. Wage Rate Redistribution
VI. Additional Classifications

I. WAGE RATES, HOURS OF LABOR AND PAYMENT OF WAGES

The schedule of "Minimum Wage Rates" attached hereto and made a part hereof furnishes the prevailing wage rates that have been determined pursuant to Section 103.50 of the Wisconsin Statutes. These wage rates are the minimum required to be paid to the various laborers, workers, mechanics and truck drivers employed by contractors and subcontractors on the construction work embraced by the contract and subject to prevailing hours and wages under Section 103.50, Stats. If necessary to employ laborers, workers, mechanics or truck drivers whose classification is not listed on the schedule, they shall be paid at rates conformable to those listed for similar classifications. Apprentices shall be paid at rates not less than those prescribed in their state indenture contacts.

While the wage rates shown are the minimum rates required by the contract to be paid during its life, this in not a representation that labor can be obtained at these rates. It is the responsibility of bidders to inform themselves as to the local labor conditions and prospective changes or adjustments of wage rates. No increase in the contract price shall be allowed or authorized on account of the payment of wage rates in excess of those listed herein.

Pursuant to Section 103.50 of the Wisconsin Statutes, the prevailing hours of labor have been determined to be up to 10 hours per day and 40 hours per calendar week Monday through Friday. If any laborer, worker, mechanic or truck driver is permitted or required to work more than the prevailing number of hours per day or per calendar week on this contract, they shall be paid for all hours in excess of the prevailing hours at a rate of at least one and one-half (1 1/2) times their hourly rate of pay. All work on Saturday, Sunday and the following holidays is to be paid at time and a half: (1) January 1, (2) the last Monday in May, (3) July 4, (4) the first Monday in September, (5) the fourth Thursday in November, (6) December 25, (7) the day before if January 1, July 4 or December 25 falls on a Saturday and (8) the day following if January 1, July 4 or December 25 falls on a Sunday.

All laborers, workers, mechanics and truck drivers shall be paid unconditionally not less often than once a week. Persons who own and operate their own trucks must receive the prevailing truck driver rate for the applicable type of truck (i.e. 2 axle, 3 or more axle, articulated, eculid or dumptor) he or she operates, plus an agreed upon amount for the use of his or her truck. Every owner-operator MUST be paid separately for their driving and for the use of their truck.

For those projects subject to the requirements of the Davis-Bacon Act, the Secretary of Labor will also have determined "Minimum Wage Rates" for work to be performed under the contract. These rates are, for all or most of the labor, worker, mechanic or truck driver classifications, identical to those established under Section 103.50 of the Wisconsin Statutes. In the event the rates are not identical, the higher of the two rates will govern.

II. PAYROLL REQUIREMENTS

All contractors and subcontractors must submit weekly Certified Payrolls and Compliance Statement verifying that all laborers, workers, mechanics and truck drivers working on the project have been paid the prevailing wage rates for all work performed under the contract required by Section 103.50 of the Wisconsin Statutes.

III. POSTINGS AT THE SITE OF THE WORK

In addition to the required postings furnished by the Department, the contractor shall post the following in at least one conspicuous place at the site of work:

a. "NOTICE TO EMPLOYEES," which provides information required to be posted by the provisions of Section 103.50 of the Wisconsin Statutes.

b. A copy of the State of Wisconsin Minimum Wages Rates. (Four pages.)

c. A copy of the contractor's Equal Employment Opportunity Policy.

d. On any project involving federal aid, in addition to the furnished postings, the contractor shall post a copy of the "Davis-Bacon Act, Minimum Wage Rates". (Three pages.)

IV. WAGE RATE REDISTRIBUTION

The amount specified as the hourly basic rate of pay and the amount(s) specified as the fringe benefit contribution(s), for all classes of laborers, workers, mechanics or truck drivers may be redistributed, when necessary, to conform to those specified in any applicable collective bargaining agreement, provided that both parties to such agreement

request and receive the approval for any such redistribution from both the Department of Transportation and the Department of Workforce Development prior to the implementation of such redistribution.

V. ADDITIONAL CLASSIFICATIONS

Any unlisted laborer or mechanic classification that is needed to perform work on this project, and is not included within the scope of any of the classifications listed in the application prevailing wage rate determination, may be added after award only if all of the following criteria have been met:

1. The affected employer(s) must make a written request to WisDOT Central Office to utilize the unlisted classification on this project.

2. The request must indicate the scope of the work to be performed by the unlisted classification and must indicate the proposed wage/fringe benefit package that the unlisted classification is to receive.

3. The work to be performed by the unlisted classification must not be performed by a classification that is included in the applicable prevailing wage rate determination.

4. The unlisted classification must be commonly employed in the area where the project is located.

5. The proposed wage/fringe benefit package must bear a reasonable relationship to those set forth in the applicable prevailing wage rate determination.

6. The request should be made prior to the actual performance of the work by the unlisted classification.

7. DWD must approve the use of the unlisted classification and the proposed wage/fringe benefit package. USDOL also must approve the use of the unlisted classification and the proposed wage/fringe benefit package on federal aid projects.

8. WisDOT and DWD may amend the proposed wage/fringe benefit package, as deemed necessary, and may set forth specific employment ratios and scope of work requirements in the approval document.

The approved wage/fringe benefit package shall be paid to all laborers, workers, mechanics or truck drivers performing work within the scope of that performed by the unlisted classification, from the first day on which such work is performed. In the event that work is performed by the unlisted classification prior to approval, the wage/fringe benefit package to be paid for such work must be in conformance with the wage/fringe

benefit package approved for such work. Under this arrangement a retroactive adjustment in wages and/or fringe benefits may be required to be made to the affected laborers, workers, mechanics or truck drivers by the affected employer(s).

ANNUAL PREVAILING WAGE RATE DETERMINATION
FOR ALL STATE HIGHWAY PROJECTS
MILWAUKEE COUNTY

Compiled by the State of Wisconsin - Department of Workforce Development
for the Department of Transportation
Pursuant to s. 103.50, Stats.
Issued on April 1, 2012

CLASSIFICATION: Contractors are required to call the Department of Workforce Development if there are any questions reqarding the proper trade or classification to be used for any worker on a public works project.

OVERTIME: Time and one-half must be paid for all hours worked over 10 hours per day and 40 hours per calendar week and for all hours worked on Saturday, Sunday and the following six (6) holidays: January 1; the last Monday in May; July 4; the 1st Monday in September; the 4th Thursday in November; December 25; the day before if January 1, July 4 or December 25 falls on a Saturday; the day following if January 1, July 4 or December 25 falls on a Sunday.

FUTURE INCREASE: If indicated for a specific trade or occupation, the full amount of such increase MUST be added to the "TOTAL" indicated for such trade or occupation on the date(s) such increase(s) becomes effective.

PREMIUM PAY: If indicated for a specific trade or occupation, the full amount of such pay MUST be added to the "HOURLY BASIC RATE OF PAY" indicated for such trade or occupation, whenever such pay is applicable.

SUBJOURNEY: Wage rates may be available for some of the classifications indicated below. Any employer that desires to use any subjourney classification on a project MUST request the applicable wage rate from the Department of Workforce Development PRIOR to the date such classification is used on such project. Form ERD-10880 is available for this purpose and can be obtained by writing to the Department of Workforce Development, Equal Rights Division, P.O. Box 8928, Madison, WI 53708.

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
	$	$	$
Bricklayer, Blocklayer or Stonemason	32.66	15.92	48.58
Carpenter	33.43	19.31	52.74
Premium Pay: DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.			
Cement Finisher	29.33	17.03	46.36
Future Increase(s): Add $1.86 on 6/1/12; Add $1.87 on 6/1/13; Add $1.87 on 6/1/14; Add $1.87 on 6/1/15; Add $1.75 on 6/ 1/ 16. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.40/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.			
Electrician	31.64	23.78	55.42
Fence Erector	35.62	0.00	35.62
Ironworker	31.31	21.54	52.85
Line Constructor (Electrical)	35.97	18.08	54.05
Painter	27.87	14.39	42.26
Pavement Marking Operator	27.87	14.39	42.26
Piledriver	29.56	24.96	54.52
Premium Pay: Add $.65/hr for Piledriver Loftsman; Add $.75/hr for Sheet Piling Loftsman. DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.			
Roofer or Waterproofer	28.85	14.60	43.45
Teledata Technician or Installer	24.65	15.17	39.82
Tuckpointer, Caulker or Cleaner	34.30	15.47	49.77
Underwater Diver (Except on Great Lakes)	36.20	18.81	55.01

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
	$	$	$
Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	33.87	16.10	49.97
Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	29.64	14.64	44.28
Premium Pay: DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.			
Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	25.18	13.07	38.25
Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	23.38	12.48	35.86
Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.30	10.97	32.27
TRUCK DRIVERS			
Single Axle or Two Axle	22.35	16.19	38.54
Future Increase(s): Add $1.75/hr on 6/1/2012; Add $1.85/hr on 6/1/2013.			
Premium Pay: DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.			
Three or More Axle	24.91	15.63	40.54
Articulated, Euclid, Dumptor, Off Road Material Hauler	22.50	16.19	38.69
Future Increase(s): Add $1.75/hr on 6/1/2012; Add $1.85/hr on 6/1/2013.			
Premium Pay: DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.			
Pavement Marking Vehicle	23.84	14.70	38.54
Shadow or Pilot Vehicle	24.76	15.35	40.11
Truck Mechanic	24.91	15.63	40.54
LABORERS			
General Laborer	24.34	17.85	42.19
Future Increase(s): Add $1.60/hr on 6/1/2012: Add $1.70/hr on 6/1/2013; Add $1.60/hr on 6/1/2014.			
Premium Pay: Add $.15/hr for air tool operator, joint sawer and filler (pavement), vibrator or tamper operator (mechanical hand operated), chain saw operator and demolition burning torch laborer; Add $.35/hr for bituminous worker (raker and luteman), formsetter (curb, sidewalk and pavement) and strike off man; Add $.50/hr for line and grade specialist; Add $.65/hr for blaster and powderman; Add $2.01/hr for topman; Add $2.46/hr for bottomman; Add $3.23/hr for pipelayer. / DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).			
Asbestos Abatement Worker	22.00	16.86	38.86
Landscaper	23.71	15.03	38.74
Flagperson or Traffic Control Person	20.83	17.85	38.68
Future Increase(s): Add $1.60/hr on 6/1/2012; Add $1.70/hr on 6/1/2013; Add $1.60/hr on 6/1/2014.			
Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.			
Fiber Optic Laborer (Outside, Other Than Concrete Encased)	17.09	14.40	31.49
Railroad Track Laborer	17.00	1.06	18.06

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
HEAVY EQUIPMENT OPERATORS			
Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Traveling Crane (Bridge Type). Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	34.22	18.90	53.12
Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With A Lifting Capacity Of 4,000 Lbs., & Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	33.72	18.90	52.62
Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Heater, Planer & Scarifier; Asphalt Milling Machine; Asphalt Screed; Automatic Subgrader (Concrete); Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Bituminous (Asphalt) Plant & Paver, Screed; Boatmen (NOT Performing Work on the Great Lakes); Boring Machine (Directional, Horizontal or Vertical); Bridge (Bidwell) Paver; Bulldozer or Endloader; Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, VIbratory/Sonic, Manual or Remote); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Conveyor System; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump, Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane WIth a Lifting Capacity of 25 Tons or Under; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Grout Pump; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Sideboom; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Trencher (Wheel Type or Chain Type); Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches	33.22	18.90	52.12

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
& A- Frames. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).			
Belting, Burlap, Texturing Machine; Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Environmental Burner; Farm or Industrial Type Tractor; Fireman (Asphalt Plant, Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Hoist (Tugger, Automatic); Jeep Digger; Joint Sawer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Self Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or WIthout Attachments); Telehandler; Tining or Curing Machine. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	32.96	18.90	51.86
Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Automatic Belt Conveyor & Surge Bin; Boiler (Temporary Heat); Concrete Proportioning Plant; Crusher, Screening or Wash Plant; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Mudjack; Oiler; Prestress Machine; Pug Mill; Pump (3 Inch or Over) or Well Points; Rock, Stone Breaker; Screed (Milling Machine); Stump Chipper; Tank Car Heaters; Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	32.67	18.90	51.57
Fiber Optic Cable Equipment.	24.39	15.45	39.84
Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	36.20	18.81	55.01
Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder.	36.20	18.81	55.01
Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	26.80	18.52	45.32
Work Performed on the Great Lakes Including Deck Equipment Operator, Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks-Great Lakes ONLY.	26.80	18.52	45.32

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
	$	$	$

SUPERSEDES DECISION WI20070010
U. S. DEPARTMENT OF LABOR
(DAVIS-BACON ACT, MINIMUM WAGE RATES)

STATE: Wisconsin
DECISION NUMBER: W1080010
DATE: September 28, 2012
DESCRIPTION OF WORK: Highways and Airport Runway and Taxiway Construction

LABORERS CLASSIFICATION:	Basic Hourly Rates	Fringe Benefits
Group 1: General Laborer; Tree Trimmer; Conduit Layer; Demolition and Wrecking Laborer; Guard Rail, Fence and Bridge Builder; Landscaper, Multiplate Culvert Assembler; Stone Handler; Bituminous Worker (Shoveler, Loader, Utility Man); Batch Truck Dumper; or Cement Handler; Bituminous Worker; (Dumper, Ironer, Smoother, Tamper); Concrete Handler	$24.34	16.74
Group 2: Air Tool Operator; Joint Sawer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated); Chain Saw Operator; Demolition Burning Torch Laborer	24.49	16.74
Group 3: Bituminous Worker (Raker and Luteman); Formsetter (Curb, Sidewalk, and Pavement); Strike Off man	24.69	16.74
Group 4: Line and Grade Specialist	24.84	16.74
Group 5: Blaster and Powderman	24.99	16.74
Group 6: Flagperson traffic control person	20.83	16.74

CLASSES OF LABORER AND MECHANICS

Bricklayer	35.58	16.07
Carpenter	30.52	14.41
Piledriverman	27.25	19.46
Ironworker	30.51	22.72
Cement Mason/Concrete Finisher	30.69	17.53
Electrician		See Page 3
Line Construction		
Lineman	38.25	18.00
Heavy Equipment Operator	34.43	16.71
Equipment Operator	30.60	15.41
Heavy Groundman Driver	26.78	14.11
Light Groundman Driver	24.86	13.45
Groundsman	21.04	12.16
Millwrights	26.32	13.98
Painter, Brush	29.52	18.79
Painter, Spray and Sandblaster	30.27	18.79
Painter, Bridge	29.87	18.79
Well Drilling:		
Well Driller	16.52	3.70

Truck Drivers:	Basic Hourly Rates	Fringe Benefits
1 & 2 Axles	23.16	17.13
Three or More Axles; Euclids, Dumptor & Articulated, Truck Mechanic	23.31	17.13

Notes: Welders receive rate prescribed for craft performing operation to which welding is incidental. Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR, 5.5(a)(1)(ii)). Includes Modification 0, dated March 12, 2010; Modification 1, dated March 19, 2010; Modification 2, dated June 4, 2010; Modification 3, dated July 2, 2010; Modification 4, dated August 6, 2010; Modification 5, dated September 3, 2010; Modification 6, dated October 1, 2010, Modification 7, dated November 5, 2010; Modificaton 8; dated November 15, 2010; Modification 9, dated January 7, 2011; Modification #10 dated February 11, 2011; Modification #11 dated May 6, 2011; Modification #12 dated May 13, 2011; Modification #13 dated June 3, 2011; Modification #14 dated July 29, 2011; Modification #15 dated August 12, 2011; Modification #16 dated August 26, 2011; Modification #17 dated September 16, 2011; Modification #18 dated October 14, 2011; Modification #19 dated November 11, 2011; Modification #0, dated January 6, 2012; Modification #1 dated January 13, 2012; Modification #2 dated February 3, 2012; Modification #3 dated February 10, 2012; Modification #4 dated March 2, 2012; Modification #5 dated May 4, 2012; Modification #6 dated May 11, 2012; Modification #7 dated June 1, 2012; Modification #8 dated June 15, 2012; Modification #9 dated July 6, 2012; Modification #10 dated August 3, 2012; Modification #11 dated August 31, 2012; Modification #12 dated September 28, 2012.

SUPERSEDES DECISION WI20070010
U. S. DEPARTMENT OF LABOR
(DAVIS-BACON ACT, MINIMUM WAGE RATES)

STATE: Wisconsin
DECISION NUMBER: W1080010
DESCRIPTION OF WORK: Highways and Airport Runway and Taxiway Construction

DATE: September 28, 2012

POWER EQUIPMENT OPERATORS CLASSIFICATION:	Basic Hourly Rates	Fringe Benefits
Group 1: Cranes, tower cranes and derricks, with or without attachments, with a lifting capacity of over 100 tons or cranes, tower cranes and derricks with boom, leads and/or jib lengths measuring 176 feet or longer	$35.22	$19.65
Group 2: Cranes, tower cranes and derricks, with or without attachments, with a lifting capacity of 100 tons or less or cranes, tower cranes and derricks with boom, leads and/or jib lengths measuring 175 feet or less, and backhoes (excavators) having a manufacturer's rated capacity of 3 cu. yds. and over, caisson rigs, pile driver, dredge operator, dredge engineer	$34.72	$19.65
Group 3: Mechanic or welder - heavy duty equipment, cranes with a lifting capacity of 25 tons or less, concrete breaker (manual or remote); vibrator/sonic concrete breaker; concrete laser screed; concrete slipform paver; concrete batch plant operator; concrete pavement spreader - heavy duty (rubber tired); concrete spreader and distributor, automatic subgrader (concrete); concrete grinder and planing machine; concrete slipform curb and gutter machine; slipform concrete placer; tube finisher; hydro blaster (10,000 psi and over); bridge paver; concrete conveyor system; concrete pump; stabilizing mixer (self propelled); shoulder widener; asphalt plant engineer; bituminous paver; bump cutter and grooving machine; milling machine; screed (bituminous paver); asphalt heater, planer and scarifier; backhoes (excavators) having a manufacturers rated capacity of under 3 cu. yds.; grader or motor patrol; tractor (scraper, dozer, pusher, loader); scraper - rubber tired (single or twin engine); endloader hydraulic backhoe (tractor-type); trenching machine; skid rigs; tractor, side boom (heavy); drilling or boring machine (mechanical heavy); roller (over 5 tons); percussion or rotary drilling machine; air track; blaster; loading machine (conveyor); tugger; boatmen; winches and A-frames; post driver; material hoist operator.	$34.22	$19.65
Group 4: Greaser, roller steel (5 tons or less); roller (pneumatic tired) - self-propelled; tractor (mounted or towed compactors and light equipment); shouldering machine; self-propelled chip spreader; concrete spreader; finishing machine; mechanical float; curing machine; power subgrader; joint saw (multiple blade) belting machine; burlap machine; texturing machine; tractor, endloader (rubber tired) - light; jeep digger; fork lift; mulcher; launch operator; fireman; environmental burner.	$33.96	$19.65
Group 5: Air compressor; power pack; vibratory hammer and extractor; heavy equipment, leadman; tank car heaters; stump chipper; curb machine operator; concrete pro-portioning plants generators; mudjack operator; rock breaker; crusher or screening plant; screed (milling machine); automatic belt conveyor and surge bin; pug mill operator; oiler; pump (over 3 inches); drilling machine helper	$33.67	$19.65
Group 6: Off – road material hauler with or without ejector	$27.77	$19.65

Premium Pay:
EPA Level "A" protection - $3.00 per hour
EPA Level "B" protection - $2.00 per hour
EPA Level "C" protection - $1.00 per hours

SUPERSEDES DECISION WI20070010
U. S. DEPARTMENT OF LABOR
(DAVIS-BACON ACT, MINIMUM WAGE RATES)

STATE: Wisconsin
DECISION NUMBER: W1080010
DESCRIPTION OF WORK: Highways and Airport Runway and Taxiway Construction

DATE: September 28, 2012

LABORERS CLASSIFICATION:	Rates	Benefits
Electricians		
Area 1	$27.80	16.52
Area 2:		
Electricians	29.13	17.92
Area 3:		
Electrical contracts under $130,000	26.24	16.85
Electrical contracts over $130,000	29.41	16.97
Area 4:	28.10	17.24
Area 5	28.61	16.60
Area 6	35.25	19.30
Area 8		
Electricians	30.00	17.76
Area 9:		
Electricians	32.94	18.71
Area 10	28.97	19.55
Area 11	31.27	23.12
Area 12	32.87	19.22
Area 13	32.20	21.64
Teledata System Installer		
Area 14		
Installer/Technician	21.89	11.83
Sound & Communications		
Area 15		
Installer	16.47	14.84
Technician	24.75	16.04

Area 1 - CALUMET (except township of New Holstein), GREEN LAKE (N. part, including Townships of Berlin, St. Marie and Seneca), MARQUETTE (N. part, including Townships of Crystal Lake, Neshkoro, Newton & Springfield), OUTAGAMIE, WAUPACA, WAUSHARA and WINNEBAGO COUNTIES.

Area 2 - ASHLAND, BARRON, BAYFIELD, BUFFALO, BURNETT, CHIPPEWA, CLARK (except Mayville, Colby, Unity, Sherman, Fremont, Lynn and Sherwood), CRAWFORD, DUNN, EAU CLAIRE, GRANT, IRON, JACKSON, LA CROSSE, MONROE, PEPIN, PIERCE, POLK, PRICE, RICHLAND, RUSK, ST. CROIX, SAWYER, TAYLOR, TREMPEALEAU, VERNON and WASHBURN COUNTIES

Area 3 - FLORENCE (townships of Aurora, Commonwealth, Fern, Florence and Homestead), MARINETTE (Niagara township)

Area 4 - BROWN, DOOR, KEWAUNEE, MANITOWOC (except Schleswig), MARINETTE (Wausauke and area south thereof), OCONTO, MENOMINEE (East of a line 6 miles West of the West boundary of Oconto County), SHAWANO (except area North of Townships of Aniwa and Hutchins) COUNTIES.

Area 5 - ADAMS, CLARK (Colby, Freemont, Lynn, Mayville, Sherman, Sherwood, Unity), FOREST, JUNEAU, LANGLADE, LINCOLN, MARATHON, MARINETTE (Area North of the town of Wausaukee), MENOMINEE (Area West of a line 6 miles West of the West boundary of Oconto County), ONEIDA, PORTAGE, SHAWANO (Area North of the townships of Aniwa and Hutchins), VILAS AND WOOD COUNTIES

Area 6 - KENOSHA COUNTY

Area 8 - DODGE, (Emmet Township only), GREEN, JEFFERSON, LAFAYETTE, RACINE (Burlington township), ROCK and WALWORTH COUNTIES

Area 9 - COLUMBIA, DANE, DODGE, (area west of Hwy. 26, except Chester & Emmet Townships), GREEN LAKE (except townships of Berlin, Seneca and St. Marie), IOWA, MARQUETTE (except townships of Neshkoka, Crystal Lake, Newton and Springfield), and SAUK COUNTIES

Area 10 - CALUMET (Township of New Holstein), DODGE (East of Hwy. 26 including Chester Township), FOND DU LAC, MANITOWOC (Schleswig), and SHEBOYGAN COUNTIES

Area 11 - DOUGLAS COUNTY

Area 12 - RACINE (except Burlington township) COUNTY

Area 13 - MILWAUKEE, OZAUKEE, WASHINGTON and WAUKESHA COUNTIES

Area 14 - Statewide.

Area 15 - DODGE (East of Hwy 26 including Chester Twp, excluding Emmet Twp), FOND DU LAC (Except Waupun), MILWAUKEE, OZAUKEE, MANITOWOC (Schleswig), WASHINGTON, AND WAUKESHA COUNTIES.

General Decision Number: WI120001 08/31/2012 WI1

Superseded General Decision Number: WI20100001

State: Wisconsin

Construction Type: Building

Counties: Milwaukee, Ozaukee, Washington and Waukesha
Counties in Wisconsin.

BUILDING CONSTRUCTION PROJECTS (Does not include residential
construction consisting of single family homes and apartments
up to and including 4 stories)

Modification Number	Publication Date
0	01/06/2012
1	01/13/2012
2	02/03/2012
3	03/02/2012
4	05/04/2012
5	07/06/2012
6	08/03/2012
7	08/31/2012

ASBE0205-001 06/01/2001

	Rates	Fringes
Asbestos Removal worker/hazardous material handler Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging and disposing of all insulation materials from mechanical systems, whether they contain asbestos or not	$ 17.90	4.45

BOIL0107-001 01/01/2012

	Rates	Fringes
BOILERMAKER		
Boilermaker	$ 31.09	25.71
Small Boiler Repair (under 25,000 lbs/hr)	$ 26.91	16.00

BRWI0005-001 06/01/2011

	Rates	Fringes
TERRAZZO WORKER	$ 30.70	15.75
TILE LAYER	$ 29.70	15.75

BRWI0008-001 06/01/2011

	Rates	Fringes
BRICKLAYER	$ 35.58	16.07

BRWI0008-003 06/01/2011

	Rates	Fringes
Marble Mason	$ 35.58	16.07

CARP0264-001 06/01/2009

	Rates	Fringes
Carpenter & Soft Floor Layer (Including Acoustical work and Drywall hanging; Excluding Batt Insulation)	$ 31.38	16.03

CARP2337-002 06/01/2009

	Rates	Fringes
MILLWRIGHT	$ 28.30	20.70

CARP2337-008 06/01/2009

	Rates	Fringes
PILEDRIVERMAN	$ 28.11	21.08

ELEC0494-001 06/01/2012

	Rates	Fringes
ELECTRICIAN	$ 32.20	21.64

ELEC0494-003 06/01/2012

	Rates	Fringes
Sound & Communications		
Installer	$ 16.47	14.84
Technician	$ 24.75	16.04

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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ELEV0015-001 01/01/2012

	Rates	Fringes
ELEVATOR MECHANIC	$ 42.86	23.535

FOOTNOTE:
PAID VACATION: 8% of regular basic for employees with more than 5 years of service, and 6% for 6 months to 5 years of service.
PAID HOLIDAYS: New Years Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Friday after Thanksgiving, and Christmas Day.

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* ENGI0139-001 06/01/2012

KENOSHA, MILWAUKEE, OZAUKEE, RACINE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Power Equipment Operator		
Group 1	$ 39.16	18.85
Group 2	$ 38.66	18.85
Group 3	$ 38.16	18.85
Group 4	$ 37.47	18.85
Group 5	$ 35.59	18.85
Group 6	$ 30.44	18.85

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, Pedestal Tower Cranes and Derricks with or w/o attachments with a lifting capacity of over 100 tons; or Cranes, Tower Cranes, Pedestal Tower Cranes and Derricks with boom, leads, and/or jib lengths measuring 176 feet or longer; Self-Erecting Tower Cranes over 4000 lbs lifting capacity; All Cranes with Boom Dollies; Boring Machines (directional); Master Mechanic. $0.50 additional per hour per 100 tons or 100 ft of boom over 200 ft or lifting capacity of crane over 200 tons to a maximum of 300 tons or 300 ft. Thereafter an increase of $0.01 per ft or ton, whichever is greater.

GROUP 2: Cranes, Tower Cranes, Pedestal Tower Cranes and Derricks with or without attachments with a lifting capacity of 100 tons or less; or Cranes, Tower Cranes Portable Tower Cranes, Pedestal Tower Cranes and Derricks with boom, leadsand/or jib lengths measuring 175 feet or

less; Backhoes (excavators) 130,000 lbs and over; Caisson Rigs; Pile Drivers; Boring Machines (vertical or horizontal), Versi-Lift, Tri-Lift, Gantry 20,000 lbs & over.

GROUP 3: Backhoe (excavator) under 130,000 lbs;Self-erecting Tower Crane 4000 lbs & under lifting capacity;Traveling Crane (bridge type); Skid Rigs; Dredge Operator; Mechanic; Concrete Paver (over 27E); Concrete Spreader and Distributor; Forklift/ Telehandler (machinery- moving / steel erection); Hydro Blaster, 10,000 psi and over

GROUP 4: Material Hoists; Stack Hoists; Hydraulic Backhoe (tractor or truck mounted); Hydraulic Crane, 5 tons or under (tractor or truck mounted); Hoist (tuggers 5 tons & over); Hydro-Excavators/Daylighters; Concrete Pumps Rotec type Conveyors; Tractor/Bulldozer/End Loader (over 40 hp); Motor Patrol; Scraper Operator; Sideboom; Straddle Carrier; Welder; Bituminous Plant and Paver Operator; Roller over 5 tons; Rail Leveling Machine (Railroad); Tie Placer; Tie Extractor; Tie Tamper; Stone Leveler; Rotary Drill Operator and Blaster; Percussion Drill Operator; Air Track Drill and/or Hammers; Gantrys (under 20,000 lbs); Tencher (wheel type or chain type having 8 inch or larger bucket); Milling Machine; Off-Road Material Haulers.

GROUP 5: Backfiller; Concrete Auto Breaker (large); Concrete Finishing Machines (road type); Rubber Tired Roller; Concrete Batch Hopper; Concrete Conveyor Systems; Grout Pumps; Concrete Mixers (14S or over); Screw Type Pumps and Gypsum Pumps; Tractor, Bulldozer, End Loader (under 40 hp); Trencher (chain type, bucket under 8 inch); Industrial Locomotives; Rollers under 5 tons; Stump Grinder/Chipper (Large); Timber Equipment; Firemen (pile drivers and derricks); Personnel Hoist, Telehandler over 8000 lbs; Robotic Tool Carrier with or without attachments

GROUP 6: Tampers - Compactors (riding type); Assistant Engineer; A-Frames and Winch Trucks; Concrete Auto Breaker; Hydrohammers (small); Brooms and Sweepers; Hoist (tuggers under 5 tons); Boats (Tug, Safety, Work Barges, Launch); Shouldering Machine Operator; Prestress Machines; Screed Operator; Stone Crushers and Screening Plants; Screed Operators (milling machine), Farm or Industrial Tractor Mounted Equipment; Post Hole Digger; Fireman (asphalt plants); Air Compressors over 400 CFM; Generators, over 150 KW; Augers (vertical and horizontal); Air, Electric, Hydraulic Jacks (slipform); Skid Steer Loaders (with or without attachments); Boiler Operators (temporary heat); Refrigeration Plant/Freeze Machines; Power Pack Vibratory/Ultra Sound Drivers and Extractors; Welding Machines; Heaters (mechanical); Pumps; Winches (small electric); Oiler and Greaser; Rotary Drill Tender; Conveyor; Forklifts/Telehandler 8000 lbs & under; Elevators: Automatic Hoists; Pumps (well points); Combination Small Equipment Operators

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IRON0008-005 07/01/2012

	Rates	Fringes

IRONWORKER.....$ 30.51 22.72

Paid Holidays: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day & Christmas Day.

LABO0113-001 06/06/2011

	Rates	Fringes
LABORER		
(1) General Laborer (Including Plaster Tender)	$ 28.82	15.61
(2) Air & Electric Equipment, Mortar Mixer, Scaffold Builder, Erector, and Swing Stage	$ 28.93	15.61
(3) Jackhammer Operator, Gunnite Machine Man	$ 29.04	15.61
(4) Caisson Worker - Topman	$ 29.13	15.61
(5) Construction Specialist	$ 29.29	15.61
(6) Nozzleman	$ 29.33	15.61
(7) Caisson Work	$ 29.48	15.61
(8) Barco Tamper	$ 30.04	15.61

LABO0113-010 06/06/2011

	Rates	Fringes
Asbestos Laborer		
Asbestos Abatement [Preparation, removal, and encapsulation of hazardous materials from non-mechanical systems]	$ 28.82	15.61

PAIN0781-001 06/01/2012

	Rates	Fringes
Painters:		
(1) Brush, Roller	$ 29.52	18.79
(2) Spray & Sandblast	$ 30.27	18.79
(3) Drywall Taper/Finisher	$ 29.87	18.79

PAIN1204-002 06/01/2012

	Rates	Fringes
GLAZIER	$ 34.19	18.25

PLAS0599-004 05/31/2010

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 30.87	16.33

PLAS0599-005 07/01/2012

	Rates	Fringes

PLASTERER.....$ 31.56 18.18

PLUM0075-001 06/01/2011

	Rates	Fringes
PLUMBER (Including HVAC work)....$	36.97	17.47

PLUM0601-001 12/04/2011

	Rates	Fringes
PIPEFITTER (Including HVAC work).....$	38.26	19.14

SFWI0183-001 07/01/2012

	Rates	Fringes
SPRINKLER FITTER.....$	38.05	23.05

SHEE0018-001 06/01/2011

	Rates	Fringes
Sheet Metal Worker (Including HVAC duct work and Technicians).....$	37.20	17.01

SUWI2002-002 01/23/2002

	Rates	Fringes
Asbestos Worker/Heat and Frost Insulator.....$	25.36	8.37
Laborers:		
Concrete Worker.....$	16.34	3.59
Landscape.....$	8.73	8.40
ROOFER.....$	18.01	3.28
Tile & Marble Finisher.....$	13.89	7.43

TEAM0039-004 05/01/2010

	Rates	Fringes
TRUCK DRIVER		
1 & 2 Axles.....$	25.09	15.20
3 or more Axles.....$	25.24	15.20

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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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 union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters , PLUM, indicate the international union and the four-digit number, 0198, that follows 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. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rate.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

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

State of Wisconsin Department of Workforce Development Equal Rights Division	**DEPARTMENTAL ORDER**

ISSUE DATE: 10/25/2012

PROJECT:

ZOO IC - MAYFAIR ROAD
WAUWATOSA CITY, MILWAUKEE COUNTY, WI
Determination No. 201202444 [Owner Project No. 1060-33-70]

PROJECT OWNER:	REQUESTER:
JOSHUA LEVEQUE, PROJECT MANAGER WISCONSIN DEPARTMENT OF TRANSPORTATION 141 NW BARSTOW ST. - PO BOX 798 WAUKESHA, WI 531879990	JOSHUA LEVEQUE, PROJECT MANAGER WISCONSIN DEPARTMENT OF TRANSPORTATION 141 NW BARSTOW ST. - PO BOX 798 WAUKESHA, WI 531879990
ADDITIONAL CONTACT:	**NOTE:** The Requester must provide a copy of this Project Determination and enclosures to the Project Owner and Additional Contact.

The department received an application for prevailing wage rate determination for the above-captioned project. The department conducted a survey to determine the prevailing wage rate for the trade(s) or occupation(s) needed to complete the project. The survey's findings appear in the attached project determination.

If you believe that the wage rate for any trade or occupation does not accurately reflect the prevailing wage rate in the city, village or town where the project is located, you may ask the department to conduct an administrative review of such wage rate. You must submit this request in writing within 30 days from the date indicated above. Additionally, your request must include wage rate information from at least three similar projects in the city, village or town where the proposed project is located and on which some work has been performed by the contested trade(s) during the current survey period and was previously considered by the department in issuing the attached determination. See DWD 290.10 of the Wisconsin Administrative Code and either s. 66.0903(3)(br), s. 66.0904(4)(e), or s. 103.49(3)(c), Stats., for a complete explanation of the administrative review process.

Enclosures

It is hereby ordered that the prevailing wage rates set forth in the attached project determination shall only be applicable to the above referenced project. This order is a **FINAL ORDER** of the department unless a timely request for an administrative review is filed with the department.

ISSUED BY:

Equal Rights Division
Labor Standards Bureau
Construction Wage Standards Section
PO Box 8928 Madison, WI 53708-8928
(608)266-6861

Web Site: http://dwd.wisconsin.gov/er/

PREVAILING WAGE RATE DETERMINATION
Issued by the State of Wisconsin
Department of Workforce Development
Pursuant to s. 103.49, Wis. Stats.
Issued On: 10/25/2012

DETERMINATION NUMBER: 201202444

EXPIRATION DATE: Prime Contracts MUST Be Awarded or Negotiated On Or Before 4/23/2013. If NOT, You MUST Reapply.

PROJECT NAME: ZOO IC - MAYFAIR ROAD

PROJECT NO: 1060-33-70

PROJECT LOCATION: WAUWATOSA CITY, MILWAUKEE COUNTY, WI

CONTRACTING AGENCY: WISCONSIN DEPARTMENT OF TRANSPORTATION

CLASSIFICATION:	Contractors are responsible for correctly classifying their workers. Either call the Department of Workforce Development (DWD) with trade or classification questions or consult DWD's Dictionary of Occupational Classifications & Work Descriptions on the DWD website at: dwd.wisconsin.gov/er/prevailing_wage_rate/Dictionary/dictionary_main.htm.
OVERTIME:	Time and one-half must be paid for all hours worked: - over 10 hours per day on prevailing wage projects - over 40 hours per calendar week - Saturday and Sunday - on all of the following holidays: January 1; the last Monday in May; July 4; the 1st Monday in September; the 4th Thursday in November; December 25; - The day before if January 1, July 4 or December 25 falls on a Saturday; - The day following if January 1, July 4 or December 25 falls on a Sunday. Apply the time and one-half overtime calculation to whichever is higher between the Hourly Basic Rate listed on this project determination or the employee's regular hourly rate of pay. Add any applicable Premium or DOT Premium to the Hourly Basic Rate before calculating overtime. A DOT Premium (discussed below) may supersede this time and one-half requirement.
FUTURE INCREASE:	When a specific trade or occupation requires a future increase, you MUST add the full hourly increase to the "TOTAL" on the effective date(s) indicated for the specific trade or occupation.
PREMIUM PAY:	If indicated for a specific trade or occupation, the full amount of such pay MUST be added to the "HOURLY BASIC RATE OF PAY" indicated for such trade or occupation, whevenever such pay is applicable.
DOT PREMIUM:	This premium only applies to highway and bridge projects owned by the Wisconsin Department of Transportation and to the project type heading "Airport Pavement or State Highway Construction." DO NOT apply the premium calculation under any other project type on this determination.
APPRENTICES:	Pay apprentices a percentage of the applicable journeyperson's hourly basic rate of pay and hourly fringe benefit contributions specified in this determination. Obtain the appropriate percentage from each apprentice's contract or indenture.
SUBJOURNEY:	Subjourney wage rates may be available for some of the trades or occupations indicated below with the exception of laborers, truck drivers and heavy equipment operators. Any employer interested in using a subjourney classification on this project MUST complete Form ERD-10880 and request the applicable wage rate from the Department of Workforce Development PRIOR to using the subjourney worker on this project.

This document **MUST BE POSTED** by the **CONTRACTING AGENCY** in at least one conspicuous and easily accessible place **on the site of the project** . A local governmental unit may post this document at the place normally used to post public notices if there is no common site on the project. This document **MUST** remain posted during the entire time any worker is employed on the project and **MUST** be physically incorporated into the specifications and all contracts and subcontracts. If you have any questions, please write to the Equal Rights Division, Labor Standards Bureau, P.O. Box 8928, Madison, Wisconsin 53708 or call (608) 266-6861.

The following statutory provisions apply to state agency projects of public works and are set forth below pursuant to the requirements of s. 103.49(3)(a), Stats.

s. 103.49 (1) (c) "PREVAILING HOURS OF LABOR" for any trade or occupation in any area means 10 hours per day and 40 hours per week and may not include any hours worked on a Saturday or Sunday or on any of the following holidays:

1. January 1.
2. The last Monday in May.
3. July 4.
4. The first Monday in September.
5. The 4th Thursday in November.
6. December 25.
7. The day before if January 1, July 4 or December 25 falls on a Saturday.
8. The day following if January 1, July 4 or December 25 falls on a Sunday.

s. 103.49 (2) PREVAILING WAGE RATES AND HOURS OF LABOR.
Any contract made for the erection, construction, remodeling, repairing, or demolition of any project of public works to which the state or any state agency is a party shall contain a stipulation that no person performing the work described in sub. (2m) may be permitted to work a greater number of hours per day or per week than the prevailing hours of labor, except that any such person may be permitted or required to work more than such prevailing hours of labor per day and per week if he or she is paid for all hours worked in excess of the prevailing hours of labor at a rate of at least 1.5 times his or her hourly basic rate of pay; nor may he or she be paid less than the prevailing wage rate determined under sub. (3) in the same or most similar trade or occupation in the area in which the project of public works is situated. A reference to the prevailing wage rates determined under sub. (3) and the prevailing hours of labor shall be published in the notice issued for the purpose of securing bids for the project. If any contract or subcontract for a project of public works that is subject to this section is entered into, the prevailing wage rates determined under sub. (3) and the prevailing hours of labor shall be physically incorporated into and made a part of the contract or subcontract, except that for a minor subcontract, as determined by the department, the department shall prescribe by rule the method of notifying the minor subcontractor of the prevailing wage rates and prevailing hours of labor applicable to the minor subcontract. The prevailing wage rates and prevailing hours of labor applicable to a contract or subcontract may not be changed during the time that the contract or subcontract is in force.

s. 103.49 (6M) LIABILITY AND PENALTIES.
(ag) 1. Any contractor, subcontractor, or contractor's or subcontractor's agent who fails to pay the prevailing wage rate determined by the department under sub. (3) or who pays less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor is liable to any affected employee in the amount of his or her unpaid wages or his or her unpaid overtime compensation and in an additional amount as liquidated damages as provided in subd. 2., 3., whichever is applicable.
2. If the department determines upon inspection under sub. (5) (b) or (c) that a contractor, subcontractor, or contractor's or subcontractor's agent has failed to pay the prevailing wage rate determined by the department under sub. (3) or has paid less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor, the department shall order the contractor to pay to any affected employee the amount of his or her unpaid wages or his or her unpaid overtime compensation and an additional amount equal to 100 percent of the amount of those unpaid wages or that unpaid overtime compensation as liquidated damages within a period specified by the department in the order.
3. In addition to or in lieu of recovering the liability specified in subd. 1. as provided in subd. 2., any employee for and in behalf of that employee and other employees similarly situated may commence an action to recover that liability in any court of competent jurisdiction. If the court finds that a contractor, subcontractor, or contractor's or subcontractor's agent has failed to pay the prevailing wage rate determined by the department under sub. (3) or has paid less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor, the court shall order the contractor, subcontractor, or agent to pay to any affected employee the amount of his or her unpaid wages or his or her unpaid overtime compensation and an additional amount equal to 100 percent of the amount of those unpaid wages or that unpaid overtime compensation as liquidated damages.

5. No employee may be a party plaintiff to an action under subd. 3. unless the employee consents in writing to become a party and the consent is filed in the court in which the action is brought. Notwithstanding s. 814.04 (1), the court shall, in addition to any judgment awarded to the plaintiff, allow reasonable attorney fees and costs to be paid by the defendant.

(am) Except as provided in pars. (b), (d) and (f), any contractor, subcontractor or contractor's or subcontractor's agent who violates this section may be fined not more than $200 or imprisoned for not more than 6 months or both. Each day that a violation continues is a separate offense.

(b) Whoever induces any person who seeks to be or is employed on any project of public works that is subject to this section to give up, waive, or return any part of the wages to which the person is entitled under the contract governing the project, or who reduces the hourly basic rate of pay normally paid to a person for work on a project that is not subject to this section during a week in which the person works both on a project of public works that is subject to this section and on a project that is not subject to this section, by threat not to employ, by threat of dismissal from employment, or by any other means is guilty of an offense under s. 946.15 (1).

(c) Any person employed on a project of public works that is subject to this section who knowingly permits a contractor, subcontractor, or contractor's or subcontractor's agent to pay him or her less than the prevailing wage rate set forth in the contract governing the project, who gives up, waives, or returns any part of the compensation to which he or she is entitled under the contract, or who gives up, waives, or returns any part of the compensation to which he or she is normally entitled for work on a project that is not subject to this section during a week in which the person works both on a project of public works that is subject to this section and on a project that is not subject to this section, is guilty of an offense under s. 946.15 (2).

(d) Whoever induces any person who seeks to be or is employed on any project of public works that is subject to this section to permit any part of the wages to which the person is entitled under the contract governing the project to be deducted from the person's pay is guilty of an offense under s. 946.15 (3), unless the deduction would be permitted under 29 CFR 3.5 or 3.6 from a person who is working on a project that is subject to 40 USC 3142.

(e) Any person employed on a project of public works that is subject to this section who knowingly permits any part of the wages to which he or she is entitled under the contract governing the project to be deducted from his or her pay is guilty of an offense under s. 946.15 (4), unless the deduction would be permitted under 29 CFR 3.5 or 3.6 from a person who is working on a project that is subject to 40 USC 3142.

BUILDING OR HEAVY CONSTRUCTION

Includes sheltered enclosures with walk-in access for the purpose of housing persons, employees, machinery, equipment or supplies and non-sheltered work such as canals, dams, dikes, reservoirs, storage tanks, etc. A sheltered enclosure need not be "habitable" in order to be considered a building. The installation of machinery and/or equipment, both above and below grade level, does not change a project's character as a building. On-site grading, utility work and landscaping are included within this definition. Residential buildings of four (4) stories or less, agricultural buildings, parking lots and driveways are NOT included within this definition.

SKILLED TRADES

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
101	Acoustic Ceiling Tile Installer	33.43	19.31	52.74
102	Boilermaker	31.09	21.87	52.96
103	Bricklayer, Blocklayer or Stonemason Future Increase(s): Add $.50 on 6/01/2012; Add $1.45/hr on 6/01/2013 Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	35.58	16.37	51.95
104	Cabinet Installer	29.06	15.16	44.22
105	Carpenter Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	33.43	19.31	52.74
106	Carpet Layer or Soft Floor Coverer	31.68	18.55	50.23
107	Cement Finisher	30.87	16.33	47.20
108	Drywall Taper or Finisher Future Increase(s): Add $2.20/hr on 6/1/2012	28.97	17.74	46.71
109	Electrician Future Increase(s): Add $1.40/hr on 6/1/2012. Add $1.60/hr on 6/1/2013. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	31.54	20.95	52.49
110	Elevator Constructor	43.79	25.48	69.27
111	Fence Erector	27.00	0.00	27.00
112	Fire Sprinkler Fitter	36.82	19.03	55.85
113	Glazier	32.25	16.20	48.45
114	Heat or Frost Insulator	33.28	22.45	55.73

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
115	Insulator (Batt or Blown)	23.62	11.55	35.17
116	Ironworker	31.31	21.54	52.85
117	Lather	31.68	18.41	50.09
118	Line Constructor (Electrical)	35.97	18.08	54.05
119	Marble Finisher	31.16	16.27	47.43
120	Marble Mason	35.53	15.92	51.45
121	Metal Building Erector	21.05	7.82	28.87
122	Millwright	28.30	23.29	51.59
123	Overhead Door Installer	26.53	0.00	26.53
124	Painter Future Increase(s): Add $2.20/hr on 6/1/2012. Premium Increase(s): Add $.20/hr for paperhanging; Add $.35/hr for bridge, iron and drywall; Add $.75/hr for spraying and sandblasting; Add $.60/hr for EIFS work; Add $1.00/hr for lead based paint removal.	28.97	17.74	46.71
125	Pavement Marking Operator	26.00	0.00	26.00
126	Piledriver	28.11	23.94	52.05
127	Pipeline Fuser or Welder (Gas or Utility)	30.52	18.84	49.36
129	Plasterer	20.13	1.03	21.16
130	Plumber	36.97	17.47	54.44
132	Refrigeration Mechanic	37.21	19.04	56.25
133	Roofer or Waterproofer Future Increase(s): Add $.50/hr. effective 06/01/2012	29.40	15.05	44.45
134	Sheet Metal Worker	37.20	16.37	53.57
135	Steamfitter	38.26	19.49	57.75
137	Teledata Technician or Installer Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	24.65	15.67	40.32
138	Temperature Control Installer	29.63	19.17	48.80
139	Terrazzo Finisher	18.00	5.35	23.35
140	Terrazzo Mechanic	31.16	16.27	47.43

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
141	Tile Finisher	23.76	16.05	39.81
142	Tile Setter	29.95	15.64	45.59
143	Tuckpointer, Caulker or Cleaner Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	34.35	15.92	50.27
144	Underwater Diver (Except on Great Lakes)	36.20	18.81	55.01
146	Well Driller or Pump Installer	25.32	15.30	40.62
147	Siding Installer	36.60	16.37	52.97
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	27.42	15.10	42.52
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	28.78	15.16	43.94
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	17.80	9.00	26.80
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	23.38	12.48	35.86
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.30	10.97	32.27

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	32.32	16.75	49.07
203	Three or More Axle Future Increase(s): Add $1.75/hr on 6/1/2012; Add $1.85/hr on 6/1/2013. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	22.50	16.19	38.69
204	Articulated, Euclid, Dumptor, Off Road Material Hauler	33.32	17.60	50.92
205	Pavement Marking Vehicle	19.25	10.84	30.09
207	Truck Mechanic	24.91	15.35	40.26

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer Premium Increase(s): Add $.11 for mortar mixer, fork lift operator, air and electric equipment and power buggy operators; Add $.22 for jackhammer operator, certified welder, gunite machineman.	28.82	15.61	44.43
302	Asbestos Abatement Worker	21.58	17.83	39.41
303	Landscaper	12.50	2.20	14.70
310	Gas or Utility Pipeline Laborer (Other Than Sewer and Water)	19.14	15.53	34.67
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased) Premium Increase(s): DOT PREMIUMS: Pay two times the hourly basic rate on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	17.24	15.00	32.24
314	Railroad Track Laborer	17.00	1.06	18.06

HEAVY EQUIPMENT OPERATORS
SITE PREPARATION, UTILITY OR LANDSCAPING WORK ONLY

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
501	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Milling Machine; Boring Machine (Directional, Horizontal or Vertical); Backhoe (Track Type) Having a Mfgr's Rated Capacity of 130,000 Lbs. or Over; Backhoe (Track Type) Having a Mfgr's Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Bulldozer or Endloader (Over 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Crane, Shovel, Dragline, Clamshells; Forklift (Machinery Moving or Steel Erection, 25 Ft & Over); Gradall (Cruz-Aire Type); Grader or Motor Patrol; Master Mechanic; Mechanic or Welder; Robotic Tool Carrier (With or Without Attachments); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Tractor (Scraper, Dozer, Pusher, Loader); Trencher (Wheel Type or Chain Type Having Over 8 Inch Bucket).	32.32	18.18	50.50
502	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Environmental Burner; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Jeep Digger; Screed (Milling Machine); Skid Rig; Straddle Carrier or Travel Lift; Stump Chipper; Trencher (Wheel Type or Chain Type Having 8 Inch Bucket & Under).	33.32	17.60	50.92

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
503	Air Compressor (&/or 400 CFM or Over); Augers (Vertical & Horizontal); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Crusher, Screening or Wash Plant; Farm or Industrial Type Tractor; Forklift; Generator (&/or 150 KW or Over); Greaser; High Pressure Utility Locating Machine (Daylighting Machine); Mulcher; Oiler; Post Hole Digger or Driver; Pump (3 Inch or Over) or Well Points; Refrigeration Plant or Freeze Machine; Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack.	32.32	17.59	49.91
504	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	36.20	18.81	55.01
505	Work Performed on the Great Lakes Including Crane or Backhoe Operator; Assistant Hydraulic Dredge Engineer; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder; 70 Ton & Over Tug Operator. Premium Increase(s): Add $.50/hr for friction crane, lattice boom or crane certification (CCO).	37.45	19.45	56.90
506	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	26.80	18.52	45.32
507	Work Performed on the Great Lakes Including Deck Equipment Operator, Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	27.75	19.15	46.90

HEAVY EQUIPMENT OPERATORS
EXCLUDING SITE PREPARATION, UTILITY, PAVING LANDSCAPING WORK

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
508	Boring Machine (Directional); Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic. Premium Increase(s): Crane Operators with CCO certification add $.50/hr. Cranes with boom length over 200 ft. not exceeding 300 ft. OR lifting capacity over 200 ton not exceeding 300 ton add $.50/hr. Over 300 ton OR 300 ft. add $.01/hr. per foot OR ton whichever is greater.	39.16	19.10	58.26

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
509	Backhoe (Track Type) Having a Mfgr's Rated Capacity of 130,000 Lbs. or Over; Boring Machine (Horizontal or Vertical); Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With A Lifting Capacity Of 4,000 Lbs. & Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Pile Driver; Versi Lifts, Tri-Lifts & Gantrys (20,000 Lbs. & Over). Premium Increase(s): Crane Operators with CCO certification add $.50/hr.	38.66	19.10	57.76
510	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump (Over 46 Meter), Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Dredge (NOT Performing Work on the Great Lakes); Forklift (Machinery Moving or Steel Erection, 25 Ft & Over); Gradall (Cruz-Aire Type); Hydro-Blaster (10,000 PSI or Over); Milling Machine; Skid Rig; Traveling Crane (Bridge Type). Premium Increase(s): Crane Operators with CCO certification add $.50/hr.	38.16	19.10	57.26
511	Air, Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Bulldozer or Endloader (Over 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Pump (46 Meter & Under), Concrete Conveyor (Rotec or Bidwell Type); Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Environmental Burner; Gantrys (Under 20,000 Lbs.); Grader or Motor Patrol; High Pressure Utility Locating Machine (Daylighting Machine); Manhoist; Material or Stack Hoist; Mechanic or Welder; Railroad Track Rail Leveling Machine, Tie Placer, Extractor, Tamper, Stone Leveler or Rehabilitation Equipment; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yd or More Capacity; Screed (Milling Machine); Sideboom; Straddle Carrier or Travel Lift; Tining or Curing Machine; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Trencher (Wheel Type or Chain Type Having Over 8-Inch Bucket). Premium Increase(s): Crane Operators with CCO certification add $.50/hr.	38.16	19.10	57.26
512	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Finishing Machine (Road Type); Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Grout Pump; Hoist (Tugger, Automatic); Industrial Locomotives; Jeep Digger; Lift Slab Machine; Mulcher; Roller (Rubber Tire, 5 Ton or Under); Screw or Gypsum Pumps; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Stump Chipper; Trencher (Wheel Type or Chain Type Having 8-Inch Bucket & Under); Winches & A-Frames.	37.47	19.10	56.57

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
513	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Boatmen (NOT Performing Work on the Great Lakes); Boiler (Temporary Heat); Crusher, Screening or Wash Plant; Elevator; Farm or Industrial Type Tractor; Fireman (Asphalt Plant NOT Performing Work on the Great Lakes); Forklift; Generator (&/or 150 KW or Over); Greaser; Heaters (Mechanical); Loading Machine (Conveyor); Oiler; Post Hole Digger or Driver; Prestress Machine; Pump (3 Inch or Over) or Well Points; Refrigeration Plant or Freeze Machine; Robotic Tool Carrier (With or Without Attachments); Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack.	30.44	19.10	49.54
514	Gas or Utility Pipeline, Except Sewer & Water (Primary Equipment). Future Increase(s): Add $2/hr. on 1/1/2013.	34.89	19.68	54.57
515	Gas or Utility Pipeline, Except Sewer & Water (Secondary Equipment).	31.26	17.40	48.66
516	Fiber Optic Cable Equipment	25.74	15.85	41.59

SEWER, WATER OR TUNNEL CONSTRUCTION

Includes those projects that primarily involve public sewer or water distribution, transmission or collection systems and related tunnel work (excluding buildings).

SKILLED TRADES

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
103	Bricklayer, Blocklayer or Stonemason	35.53	15.92	51.45
105	Carpenter Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	33.43	19.31	52.74
107	Cement Finisher Future Increase(s): Add $1.86 on 6/1/12; Add $1.87 on 6/1/13; Add $1.87 on 6/1/14; Add $1.87 on 6/1/15; Add $1.75 on 6/1/16. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.40/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.	27.14	19.22	46.36
109	Electrician Future Increase(s): Add $1.40/hr on 6/1/2012. Add $1.60/hr on 6/1/2013. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	31.54	20.95	52.49
111	Fence Erector	27.00	0.00	27.00
116	Ironworker Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	31.31	22.22	53.53
118	Line Constructor (Electrical)	35.97	18.08	54.05
125	Pavement Marking Operator	26.00	0.00	26.00
126	Piledriver	28.11	23.94	52.05
130	Plumber	36.18	16.86	53.04
135	Steamfitter	35.81	19.04	54.85
137	Teledata Technician or Installer	24.65	15.17	39.82

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
143	Tuckpointer, Caulker or Cleaner	34.30	15.47	49.77
144	Underwater Diver (Except on Great Lakes)	36.20	18.81	55.01
146	Well Driller or Pump Installer	24.22	14.80	39.02
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	27.42	15.10	42.52
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	28.78	15.16	43.94
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	17.80	9.00	26.80
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	23.38	12.48	35.86
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.30	10.97	32.27

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	23.00	8.64	31.64
203	Three or More Axle	17.54	13.41	30.95
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add $1.75/hr on 6/1/2012; Add $1.85/hr on 6/1/2013. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	22.50	16.19	38.69
205	Pavement Marking Vehicle	19.25	10.84	30.09
207	Truck Mechanic	17.54	13.41	30.95

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer Future Increase(s): Add $1.73/hr on 6/4/2012. Premium Increase(s): Add $1.92 for bottomman; Add $2.03 for concrete manhole builder, bracer, jointman, or pipelayer; Add $4.83 for blaster. Add $2.00 for all tunnel work under 15 lbs. compressed air; Add $2.00 for 0-30 lbs. compressed air; Add $3.00 for over 30 lbs. compressed air.	27.72	15.61	43.33

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
303	Landscaper	12.50	2.20	14.70
304	Flagperson or Traffic Control Person	22.50	12.90	35.40
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	17.09	14.40	31.49
314	Railroad Track Laborer	17.00	1.06	18.06

HEAVY EQUIPMENT OPERATORS
SEWER, WATER OR TUNNEL WORK

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
521	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Master Mechanic; Pile Driver. Premium Increase(s): Crane Operators with CCO certification add $.50/hr. Cranes with boom length over 200 ft. not exceeding 300 ft. OR lifting capacity over 200 ton not exceeding 300 ton add $.50/hr. Over 300 ton OR 300 ft. add $.01/hr. per foot OR ton whichever is greater.	39.16	19.10	58.26
522	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Boring Machine (Directional); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump (Over 46 Meter), Concrete Conveyor (Rotec or Bidwell Type); Concrete Spreader & Distributor; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity of 4,000 Lbs. & Under; Dredge (NOT Performing Work on the Great Lakes); Milling Machine; Skid Rig; Telehandler; Traveling Crane (Bridge Type). Future Increase(s): Add $2.05/hr on 6/4/2012. Premium Increase(s): Add $.25/hr for operating tower crane.	33.91	18.55	52.46

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
523	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Boring Machine (Horizontal or Vertical); Bulldozer or Endloader (Over 40 hp); Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Concrete Pump (46 Meter & Under), Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Hydro-Blaster (10,000 PSI or Over); Manhoist; Material or Stack Hoist; Mechanic or Welder; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yd or More Capacity; Screed (Milling Machine); Sideboom; Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Trencher (Wheel Type or Chain Type Having Over 8-Inch Bucket). Future Increase(s): Add $2.05/hr on 6/4/2012. Premium Increase(s): Add $.25/hr for operating tower crane.	32.96	18.55	51.51
524	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Finishing Machine (Road Type); Environmental Burner; Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Hoist (Tugger, Automatic); Grout Pump; Jeep Digger; Lift Slab Machine; Mulcher; Power Subgrader; Pump (3 Inch or Over) or Well Points; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Screw or Gypsum Pumps; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Stump Chipper; Tining or Curing Machine; Trencher (Wheel Type or Chain Type Having 8-Inch Bucket & Under); Winches & A-Frames.	30.89	18.12	49.01
525	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Crusher, Screening or Wash Plant; Farm or Industrial Type Tractor; Fireman (Asphalt Plant NOT Performing Work on the Great Lakes); Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Loading Machine (Conveyor); Post Hole Digger or Driver; Refrigeration Plant or Freeze Machine; Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add $2.05/hr on 6/4/2012. Premium Increase(s): Add $.25/hr for operating tower crane.	30.51	18.55	49.06
526	Boiler (Temporary Heat); Forklift; Greaser; Oiler.	29.44	18.10	47.54
527	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	36.20	18.81	55.01

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
528	Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder.	36.20	18.81	55.01
529	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	26.80	18.52	45.32
530	Work Performed on the Great Lakes Including Deck Equipment Operator; Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under), Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	26.80	18.52	45.32

LOCAL STREET OR MISCELLANEOUS PAVING CONSTRUCTION

Includes roads, streets, alleys, trails, bridges, paths, racetracks, parking lots and driveways (except residential or agricultural), public sidewalks or other similar projects (excluding projects awarded by the Wisconsin Department of Transportation).

SKILLED TRADES

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
103	Bricklayer, Blocklayer or Stonemason	35.53	15.92	51.45
105	Carpenter	29.06	15.16	44.22
107	Cement Finisher	27.57	16.33	43.90
109	Electrician Future Increase(s): Add $.50/hr. effective 06/04/2012. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	28.74	17.86	46.60
111	Fence Erector	27.00	0.00	27.00
116	Ironworker	31.31	21.54	52.85
118	Line Constructor (Electrical)	35.97	18.08	54.05
124	Painter	28.47	16.74	45.21
125	Pavement Marking Operator	26.00	0.00	26.00
126	Piledriver	28.11	23.94	52.05
133	Roofer or Waterproofer	28.85	14.60	43.45
137	Teledata Technician or Installer	24.65	15.17	39.82
143	Tuckpointer, Caulker or Cleaner	34.30	15.47	49.77
144	Underwater Diver (Except on Great Lakes)	36.20	18.81	55.01
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	35.42	12.90	48.32
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	28.78	14.42	43.20
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	25.18	13.07	38.25
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	23.38	12.48	35.86
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.30	10.97	32.27

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	15.00	0.00	15.00
203	Three or More Axle	20.00	6.00	26.00
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add $1/hr on 6/3/2012; Add $1/hr on 6/2/2013.	31.89	17.98	49.87
205	Pavement Marking Vehicle	19.25	10.84	30.09
206	Shadow or Pilot Vehicle	15.00	0.00	15.00
207	Truck Mechanic	20.00	6.00	26.00

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer	21.73	17.04	38.77
303	Landscaper	22.96	15.37	38.33
304	Flagperson or Traffic Control Person Future Increase(s): Add $1.60/hr on 6/1/2012; Add $1.70/hr on 6/1/2013; Add $1.60/hr on 6/1/2014. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.	23.55	13.45	37.00
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	17.09	14.40	31.49
314	Railroad Track Laborer	17.00	1.06	18.06

HEAVY EQUIPMENT OPERATORS
CONCRETE PAVEMENT OR BRIDGE WORK

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
541	Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	34.22	18.90	53.12
542	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity of 4,000 Lbs. & Under; Crane, Tower Crane Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	33.72	18.90	52.62

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
543	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Automatic Subgrader (Concrete); Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Boring Machine (Directional, Horizontal or Vertical); Bridge (Bidwell) Paver; Bulldozer or Endloader; Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Conveyor System; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump, Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane With a Lifting Capacity of 25 Tons or Under; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Grout Pump; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Manhoist; Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Sideboom; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Trencher (Wheel Type or Chain Type); Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches & A-Frames.	31.89	18.22	50.11
544	Backfiller; Belting, Burlap, Texturing Machine; Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Environmental Burner; Farm or Industrial Type Tractor; Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Jeep Digger; Joint Sawer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (WIth or Without Attachments); Self Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Telehandler; Tining or Curing Machine. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	33.22	18.90	52.12

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
545	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Automatic Belt Conveyor & Surge Bin; Boiler (Temporary Heat); Concrete Proportioning Plant; Crusher, Screening or Wash Plant; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Mudjack; Oiler; Prestress Machine; Pug Mill; Pump (3 Inch or Over) or Well Points; Rock, Stone Breaker; Screed (Milling Machine); Stump Chipper; Tank Car Heaters; Vibratory Hammer or Extractor, Power Pack.	30.42	17.58	48.00
546	Fiber Optic Cable Equipment.	24.39	15.45	39.84
547	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	36.20	18.81	55.01
548	Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder.	36.20	18.81	55.01
549	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or more); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	26.80	18.52	45.32
550	Work Performed on the Great Lakes Including Deck Equipment Operator; Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	26.80	18.52	45.32

HEAVY EQUIPMENT OPERATORS
ASPHALT PAVEMENT OR OTHER WORK

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
551	Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self Erecting Tower Crane With a Lifting Capacity of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads and/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic.	38.06	18.10	56.16

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
552	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity Of 4,000 Lbs. & Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	33.72	18.90	52.62
553	Air, Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Heater, Planer & Scarifier; Asphalt Milling Machine; Asphalt Screed; Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Bituminous (Asphalt) Plant & Paver, Screed; Boring Machine (Directional, Horizontal or Vertical); Bulldozer or Endloader; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Laser/Screed; Concrete Slipform Placer Curb & Gutter Machine; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane With a Lifting Capacity of 25 Tons or Under; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Manhoist; Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; Railroad Track Rail Leveling Machine, Tie Placer, Extractor, Tamper, Stone Leveler or Rehabilitation Equipment; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Sideboom; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Trencher (Wheel Type or Chain Type); Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches & A-Frames.	31.52	17.50	49.02

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
554	Backfiller; Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Environmental Burner; Farm or Industrial Type Tractor; Fireman (Asphalt Plant, Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Hoist (Tugger, Automatic); Jeep Digger; Joint Sawer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Self-Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Telehandler. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14.	32.67	18.55	51.22
555	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Automatic Belt Conveyor & Surge Bin; Boiler (Temporary Heat); Crusher, Screening or Wash Plant; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Mudjack; Oiler; Prestress Machine; Pug Mill; Pump (3 Inch or Over) or Well Points; Rock, Stone Breaker; Screed (Milling Machine); Stump Chipper; Tank Car Heaters; Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14.	32.67	18.55	51.22
556	Fiber Optic Cable Equipment.	24.39	15.45	39.84

********** END OF RATES **********

Department of Workforce Development
Equal Rights Division
P.O. Box 8928
Madison, WI 53708-8928
Telephone: (608) 266-6860
Fax: (608) 267-4592
TTY: (608) 264-8752

STATE OF WISCONSIN
DWD
Department of Workforce Development

Scott Walker, Governor
Reginald J. Newson, Secretary
Joe Handrick, Division Administrator

The documents following the Prevailing Wage Rate Determination consist of 18 pages of various forms/documents that will be used throughout the completion of the project. The chart below lists the form number, form/document name, the party who uses the document, and the document's number of pages. If you have any questions regarding these forms please call the Prevailing Wage Office at (608)266-6861.

ERD Form Number	Form Name	Party Who Uses the Form	Pages
16056	Post the White Sheet	Contracting agency	1
16770	Substance Abuse Prevention on Public Works and Publicly Funded Projects, §103.503, Wis. Stats.	All contractors working on public works and publicly funded private construction projects	1
10908	Consolidated List of Debarred Contractors	Any party contracting someone to complete work on a prevailing wage project	2
7777	Disclosure of Ownership	Contractors that meet the criteria set out in (3)(A)&(B) of the form	1
5724	Prime Contractor Affidavit of Compliance	Prime contractor files with contracting agency upon completion of the work before receiving final payment	2
10584	Agent or Subcontractor Affidavit of Compliance	Subcontractors file with their awarding contractor upon completion of their work on the project before receiving final payment	2
10880	Request to Employ Subjourneyperson	Contractors wishing to employ a subjourneyperson(s)	1
	Prevailing Wage - Public Entity Project Owners	Explanation of project owner responsibilities	2
	Prevailing Wage – Contractors	Explanation of contractor responsibilities	2
	Summary of Prevailing Wage Law Changes Effective July 1, 2011	Information for public entity or any other interested party	4

09/01/12

State of Wisconsin
Department of Workforce Development
Equal Rights Division
Labor Standards Bureau

POST THE WHITE SHEET

As the public entity receiving this prevailing wage rate determination, YOU ARE REQUIRED by law to post the prevailing wage rate determination (i.e., white sheet) in at least one conspicuous and easily accessible place on the project site that is available to all construction workers. The white sheet must remain posted from the onset of the project until all construction labor on the project has been completed.
[*See,* Wis. Admin. Code §DWD 290.12(1)]

Posting the white sheet inside the general contractor's trailer does not meet this requirement. That placement is not available/accessible to all workers and is not a location over which you have control.

If you have questions about posting, please call (608)266-6861 and ask for prevailing wage intake.

Disclaimer

Employers performing work on public works and publicly funded private construction projects in Wisconsin are required to have a written substance abuse testing program in place. The provisions of this requirement are contained in Sec. 103.503, Wis. Stats. The Department of Workforce Development is neither responsible for enforcement of this law nor authorized to answer questions concerning its provisions. For legal advice on complying with Sec. 103.503, Wis. Stats., you may wish to consult with a private attorney.

103.503 Substance abuse prevention on public works and publicly funded projects. (1) DEFINITIONS. In this section:

(a) "Accident" means an incident caused, contributed to, or otherwise involving an employee that resulted or could have resulted in death, personal injury, or property damage and that occurred while the employee was performing the work described in s. 66.0903 (4), 66.0904 (3), or 103.49 (2m) on a project.

(b) "Alcohol" has the meaning given in s. 340.01 (1q).

(c) "Contracting agency" means a local governmental unit, as defined in s. 66.0903 (1) (d), a state agency, as defined in s. 103.49 (1) (f), or an owner or developer under s. 66.0904 that has contracted for the performance of work on a project.

(d) "Drug" means any controlled substance, as defined in s. 961.01 (4), or controlled substance analog, as defined in s. 961.01 (4m), for which testing is required by an employer under its substance abuse prevention program under this section.

(e) "Employee" means a laborer, worker, mechanic, or truck driver who performs the work described in s. 66.0903 (4), 66.0904 (3), or 103.49 (2m) on a project.

(f) "Employer" means a contractor, subcontractor, or agent of a contractor or subcontractor that performs work on a project.

(g) "Project" mean a project of public works that is subject to s. 66.0903 or 103.49 or a publicly funded private construction project that is subject to s. 66.0904.

(2) SUBSTANCE ABUSE PROHIBITED. No employee may use, possess, attempt to possess, distribute, deliver, or be under the influence of a drug, or use or be under the influence of alcohol, while performing the work described in s. 66.0903 (4), 66.0904 (3), or 103.49 (2m) on a project. An employee is considered to be under the influence of alcohol for purposes of this subsection if he or she has an alcohol concentration that is equal to or greater than the amount specified in s. 885.235 (1g) (d).

(3) SUBSTANCE ABUSE PREVENTION PROGRAMS REQUIRED. (a) Before an employer may commence work on a project, the employer shall have in place a written program for the prevention of substance abuse among its employees. At a minimum, the program shall include all of the following:

1. A prohibition against the actions or conditions specified in sub. (2).

2. A requirement that employees performing the work described in s. 66.0903 (4), 66.0904 (3), or 103.49 (2m) on a project submit to random, reasonable suspicion, and post-accident drug and alcohol testing and to drug and alcohol testing before commencing work on a project, except that testing of an employee before commencing work on a project is not required if the employee has been participating in a random testing program during the 90 days preceding the date on which the employee commenced work on the project.

3. A procedure for notifying an employee who violates sub. (2), who tests positive for the presence of a drug in his or her system, or who refuses to submit to drug or alcohol testing as required under the program that the employee may not perform work on a project until he or she meets the conditions specified in sub. (4) (b) 1. and 2.

(b) Each employer shall be responsible for the cost of developing, implementing, and enforcing its substance abuse prevention program, including the cost of drug and alcohol testing of its employees under the program. The contracting agency is not responsible for that cost, for the cost of any medical review of a test result, or for any rehabilitation provided to an employee.

(4) EMPLOYEE ACCESS TO PROJECT. (a) No employer may permit an employee who violates sub. (2), who tests positive for the presence of a drug in his or her system, or who refuses to submit to drug or alcohol testing as required under the employer's substance abuse prevention program under sub. (3) to perform work on a project until he or she meets the conditions specified in par. (b) 1. and 2. An employer shall immediately remove an employee from work on a project if any of the following occurs:

1. The employee violates sub. (2), tests positive for the presence of a drug in his or her system, or refuses to submit to drug or alcohol testing as required under the employer's substance abuse prevention program.

2. An officer or employee of the contracting agency has a reasonable suspicion that the employee is in violation of sub. (2) and requests the employer to immediately remove the employee from work on the project.

(b) An employee who is barred or removed from work on a project under par. (a) may commence or return to work on the project upon his or her employer providing to the contracting agency documentation showing all of the following:

1. That the employee has tested negative for the presence of drugs in his or her system and is not under the influence of alcohol as described in sub. (2).

2. That the employee has been approved to commence or return to work on the project in accordance with the employer's substance abuse prevention program.

(c) Testing for the presence of drugs or alcohol in an employee's system and the handling of test specimens shall be conducted in accordance with guidelines for laboratory testing procedures and chain-of-custody procedures established by the substance abuse and mental health services administration of the federal department of health and human services.

(5) LOCAL ORDINANCES; STRICT CONFORMITY REQUIRED. A local governmental unit, as defined in s. 66.0903 (1) (d), may enact an ordinance regulating the conduct regulated under this section only if the ordinance strictly conforms to this section.

History: 2005 a. 181; 2009 a. 28.

Consolidated List of Debarred Contractors
Prepared and Issued By
State of Wisconsin
Department of Workforce Development

This list has been prepared in accordance with the provisions of s. 66.0903(12), s. 66.0904(10) and s. 103.49(7), Stats. and Chapter DWD 294 of the Wisconsin Administrative Code. All contractors on this list were found to have committed a "debarable offense" related to certain labor standard provisions determined or established for a state or local public works project or publicly funded private construction project. No state agency, local governmental unit or owner or developer may knowingly solicit bids from, negotiate with or award any contracts to or approve or allow any subcontracts with a debarred contractor, including all divisions, affiliates or other organizational elements of such contractor that are engaged in construction business activities, until the debarment is terminated. The name of each debarred contractor must remain on this list for a period of three (3) years from the termination date indicated below. The contractor is, however, only "debarred" from the "effective date" through the "termination date" indicated for that contractor. Questions regarding this list should be addressed to Julie Eckenwalder, Equal Rights Division, P. O. Box 8928, Madison, WI 53708 or call (608) 266-3148. Deaf, hearing or speech-impaired callers may contact the department by calling its TDD number (608) 264-8752.

Name of Contractor	Address	Effective Date	Termination Date	Cause Code	Date of Violation(s)	Limitations/Deviations
Abel, Mike	*See,* Abel Electric, Inc					
Abel Electric, Inc	3385 Belmar Rd Green Bay, WI 54313	9/1/12	8/31/2015	1	2011	None
Atkins, Scott	*See,* Freedom Insulation, Inc					
Boecker, Roger	*See,* R-Way Pumping, Inc					
Castlerock Commercial Construction, Inc	PO Box 11699 Milwaukee, WI 53211-0699	2/1/12	1/31/15	1, 2 and 4	2009 & 2010	None
Custom Heating & Air LLC	283 Tony Lane Green Bay, WI 54304	12/1/06	11/30/09	1, 2 and 4	2003 & 2004	None
Dem/Ex Group, Inc	805 S Adams St Manito, IL 61546	12/1/11	11/30/14	1 and 2	2010	None
Fisher, Ed &/or Fisher, Rhonda	*See,* Dem/Ex Group, Inc					
Freedom Insulation, Inc	117925 219th Ave Chippewa Falls, WI 54729	9/1/11	8/31/14	1	2008-2010	None

Name of Contractor	Address	Effective Date	Termination Date	Cause Code	Date of Violation(s)	Limitations/Deviations
JT Roofing, Inc	350 Tower Dr Saukville, WI 53080	6/1/11	5/31/15	1,2 and 4	2007 & 2008	None
Jinkins, Richard	*See,* Castlerock Commercial Construction, Inc.					
Joseph Stoller Company	N8426 Hwy 42 Algoma, WI 54201	2/1/07	1/31/10	1 and 2	2004 & 2005	None
Keiver, David	*See,* Custom Heating & Air LLC					
Ofstie, Darin	*See,* Precision Excavating and Grading, LLC					
Precision Excavating and Grading, LLC or Precision Excavating Enterprises, LLC	2104 Pierce Saint Croix Rd Baldwin, WI 54002	5/1/11	4/30/14	1, 2 and 4	2006-2008	None
R-Way Pumping, Inc	3023 Lake Maria Rd Freeport, MN 56331	3/1/12	2/28/15	1, 2 and 4	2008	None
Stoller Enterprises LLC	N8426 Hwy 42 Algoma, WI 54201-9552	2/1/2007	1/31/10	1 and 2	2005 to 2006	None
Stoller, Joseph	*See,* Joseph Stoller Company					
Stoller, Patrick J	*See,* Stoller Enterprises LLC					
Thull, Gerald T	*See,* JT Roofing, Inc.					

Cause Code: 1 = Failure to Pay Straight Time 2 = Failure to Pay Overtime 3 = Kickback 4 = Payroll Records.

State of Wisconsin
Department of Workforce Development
Equal Rights Division

Disclosure of Ownership

The statutory authority for the use of this form is prescribed in Sections 66.0903(12)(d), 66.0904(10)(d) and 103.49(7)(d), Wisconsin Statutes.
The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.
Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1) (m), Wisconsin Statutes]

(1) On the date a contractor submits a bid to or completes negotiations with a state agency, local governmental unit, or developer, investor or owner on a project subject to Section 66.0903, 66.0904 or 103.49, Wisconsin Statutes, the contractor shall disclose to such state agency, local governmental unit, or developer, investor or owner, the name of any "other construction business", which the contractor, or a shareholder, officer or partner of the contractor, owns or has owned within the preceding three (3) years.

(2) The term "other construction business" means any business engaged in the erection, construction, remodeling, repairing, demolition, altering or painting and decorating of buildings, structures or facilities. It also means any business engaged in supplying mineral aggregate, or hauling excavated material or spoil as provided by Sections 66.0903(3), 66.0904(2), 103.49(2) and 103.50(2), Wisconsin Statutes.

(3) This form must ONLY be filed, with the state agency project owner, local governmental unit project owner, or developer, investor or owner of a publicly funded private construction project that will be awarding the contract, if **both (A) and (B) are met**.

(A) The contractor, or a shareholder, officer or partner of the contractor:
(1) Owns at least a 25% interest in the "other construction business", indicated below, on the date the contractor submits a bid or completes negotiations.
(2) Or has owned at least a 25% interest in the "other construction business" at any time within the preceding three (3) years.

(B) The Wisconsin Department of Workforce Development (DWD) has determined that the "other construction business" has failed to pay the prevailing wage rate or time and one-half the required hourly basic rate of pay, for

Other Construction Business

Name of Business			
Street Address or P O Box	City	State	Zip Code
Name of Business			
Street Address or P O Box	City	State	Zip Code
Name of Business			
Street Address or P O Box	City	State	Zip Code
Name of Business			
Street Address or P O Box	City	State	Zip Code

I hereby state under penalty of perjury that the information, contained in this document, is true and accurate according to my knowledge and belief.

Print the Name of Authorized Officer			
Signature of Authorized Officer	Date Signed		
Name of Corporation, Partnership or Sole Proprietorship			
Street Address or P O Box	City	State	Zip Code

If you have any questions call (608) 266-6861

State of Wisconsin
Department of Workforce Development
Equal Rights Division

Prime Contractor Affidavit of Compliance With Prevailing Wage Rate Determination

Authorization for this form is provided under Sections 66.0903(9)(c), 66.0904(7)(c) and 103.49(4r)(c) Wisconsin Statutes.
The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.
Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1)(m), Wisconsin Statutes].

This form must **ONLY** be filed with the **Awarding Agency** indicated below.

State Of)	Project Name	
	DWD Determination Number	Project Number (if applicable)
)SS	Date Determination Issued	Date of Contract
County Of)	Awarding Agency	
	Date Work Completed	

After being duly sworn, the person whose name and signature appears below hereby states under penalty of perjury that

- **I am** the duly authorized officer of the corporation, partnership, sole proprietorship or business indicated below and have recently completed all of the work required under the terms and conditions of a contract with the above-named awarding agency and make this affidavit in accordance with the requirements set forth in Section 66.0903(9)(c), 66.0904(7)(c) or 103.49(4r)(c), Wisconsin Statutes and Chapter DWD 290 of the Wisconsin Administrative Code in order to obtain FINAL PAYMENT from such awarding agency.
- **I have** fully complied with all the wage and hour requirements applicable to this project, including all of the requirements set forth in the prevailing wage rate determination indicated above which was issued for such project by the Department of Workforce Development on the date indicated above.
- **I have** received the required affidavit of compliance from each of my agents and subcontractors that performed work on this project and have listed each of their names and addresses on page 2 of this affidavit.
- **I have** full and accurate records that clearly indicate the name and trade or occupation of every worker(s) that I employed on this project, including an accurate record of the hours worked and actual wages paid to such worker(s).
- **I will** retain the records and affidavit(s) described above and make them available for inspection for a period of at least three (3) years from the completion date indicated above at the address indicated below and shall not remove such records or affidavit(s) without prior notification to the awarding agency indicated above.

Name of Corporation, Partnership, Sole Proprietorship, Business, State Agency or Local Governmental Unit				
Street Address	City	State	Zip Code	Telephone Number
Print Name of Authorized Officer			Date Signed	
Signature of Authorized Officer				

List of Agents and Subcontractors

Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		

State of Wisconsin
Department of Workforce Development
Equal Rights Division

Agent or Subcontractor Affidavit of Compliance With Prevailing Wage Rate Determination

Authorization for this form is provided under Sections 66.0903(9)(b), 66.0904(7)(b) and 103.49(4r)(9b), Wisconsin Statutes. The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.
Personal information you provide may be used for secondary purposes [Privacy Law, Section 15.04(1)(m), Wisconsin Statutes].

This form must **ONLY** be filed with the **Awarding Contractor** indicated below.

State Of _____))SS County Of _____)	Project Name	
	DWD Determination Number	Project Number (if applicable)
	Date Determination Issued	Date of Subcontract
	Awarding Contractor	
	Date Work Completed	

After being duly sworn, the person whose name and signature appears below hereby states under penalty of perjury that

- **I am** the duly authorized officer of the corporation, partnership, sole proprietorship or business indicated below. We have recently completed all of the work required under the terms and conditions of a subcontract with the above-named awarding contractor. We make this affidavit in accordance with the requirements set forth in Section 66.0903(9)(b), 66.0904(7)(b) or 103.49(4r)(b), Wisconsin Statutes and Chapter DWD 290 of the Wisconsin Administrative Code in order to obtain FINAL PAYMENT from such awarding contractor.
- **I have** fully complied with the entire wage and hour requirements applicable to this project, including all of the requirements set forth in the prevailing wage rate determination indicated above which was issued for such project by the Department of Workforce Development on the date indicated above.
- **I have** received the required affidavit of compliance from each of my agents and subcontractors that performed work on this project and have listed each of their names and addresses on page 2 of this affidavit.
- **I have** full and accurate records that clearly indicate the name and trade or occupation of every worker(s) that I employed on this project, including an accurate record of the hours worked and actual wages paid to such worker(s).
- **I will** retain the records and affidavit(s) described above and make them available for inspection for a period of at least three (3) years from the completion date indicated above at the address indicated below and shall not remove such records or affidavit(s) without prior notification to the awarding contractor.

Name of Corporation, Partnership, Sole Proprietorship, Business, State Agency or Local Governmental Unit				
Street Address or PO Box	City	State	Zip Code	Telephone Number ( )
Print Name of Authorized Officer			Date Signed	
Authorized Officer Signature				

List of Agents and Subcontractors

Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		

If you have any questions call (608) 266-6861

State of Wisconsin
Department of Workforce Development
Equal Rights Division
Labor Standards Bureau

Request to Employ Subjourneyperson

The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.
Personal information you provide may be used for secondary purposes (Privacy Law, s. 15.04(1)(m), Wisconsin Statutes].
The employer indicated below requests that the Department of Workforce Development (DWD) determine the prevailing wage rate(s) and related qualifications to enable such employer to use a subjourneyperson(s) on the following prevailing wage project, in accordance with the provisions of Section DWD 290.025, Wisconsin Administrative Code.

1. Name of Project Appearing on the Project Determination			
County	City, Village or Town		
DWD Project Determination Number	Project Number (if applicable)		
2. Job Classification(s) for which you request a subjourney rate (i.e., carpenter, electrician, plumber, etc.)			
a.	b.		
c.	d.		
3. Employer Name (Print)	Requester Name (Print)		
Address	City	State	Zip Code
Telephone Number ( )	Requester Title		
Email address (if you prefer to receive your response via email)	Fax Number (if you prefer to receive your response via fax) ( )		

READ CAREFULLY: I understand that this request is ONLY applicable to the project and job classification(s) listed above and that subjourney employees primarily work under the direction of and assist a skilled trade employee by frequently using the tools of a skilled trade and will NOT regularly perform the duties of a general laborer, heavy equipment operator or truck driver. If the subjourney employee regularly performs the work of a different trade or occupation, he/she will be compensated for such work at the applicable journeyperson prevailing wage rate. I agree to compensate subjourney employees in strict accordance with the directions received from the DWD.

Requester Signature	Date Signed

MAIL the completed request to:
EQUAL RIGHTS DIVISION, LABOR STANDARDS BUREAU
PO BOX 8928, MADISON WI 53708
OR
FAX the completed request to: (608) 267-0310 / **DO NOT e-mail your request.**
Call (608) 266-6861 for assistance in completing this form.

Department of Workforce Development
Equal Rights Division
P.O. Box 8928
Madison, WI 53708-8928
Telephone: (608) 266-6860
Fax: (608) 267-4592
TTY: (608) 264-8752

STATE OF WISCONSIN
DWD
Department of Workforce Development

Scott Walker, Governor
Reginald J. Newson, Secretary
John P. Conway, Division Administrator

PREVAILING WAGE – Public Entity Project Owners

Any public works project that has a total estimated project cost that equals or exceeds single-trade or multiple-trade project thresholds requires a prevailing wage rate determination issued by the Department of Workforce Development (DWD). Public works include erecting, constructing, remodeling, repairing, demolishing, alterations, painting and decorating projects for a local governmental unit or state agency. State law excludes minor service or maintenance work, warranty work, or work under a supply-and-installation contract. There is a statutory definition for each of these exclusions. The prevailing wage law that applies to local governmental units is §66.0903, Wis. Stats. The prevailing wage law that applies to state agencies is §103.49, Wis. Stats. The applicable administrative rules for all public entities are DWD 290 and DWD 294, Wis. Adm. Code.

Thresholds

A "single-trade project of public works" means a project in which a single trade accounts for 85% or more of the total labor cost of the project. The single trade threshold is $48,000.

A "multiple-trade project of public works" means a project in which no single trade accounts for 85% or more of the total labor cost of the project.

(a) The multiple-trade threshold is $100,000, unless a municipality falls under the description in (b).

(b) The multiple-trade threshold of $234,000 applies to public works projects erected, constructed, repaired, remodeled, or demolished by a private contractor for •a city or village with a population less than 2500 or •a town.

Effective July 1, 2011, a local governmental unit or state agency that has a public works project that equals or exceeds the prevailing wage thresholds must do all of the following:

- Request a prevailing wage rate determination for the project from DWD at least 30 days before soliciting bids or negotiating contracts. An Application for Prevailing Wage Rate Determination is available on the DWD website: http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm
  To avoid waiting for a project determination use the on-line application system that permits the user to generate a determination immediately and save all documents in PDF form to the user's computer. Use this project determination on line application at the following address:

http://dwd.wisconsin.gov/er/prevailing_wage_rate/pw_online_determinations.htm

- Tell potential contractors the project is subject to state prevailing wage law when soliciting bids.

- Include the prevailing wage rate determination in the construction contract, or if there is no written contract, provide a copy of the project determination to each prime contractor.

- Award contracts to contractors who do *not* appear on the "Consolidated List of Debarred Contractors."

- Post the prevailing wage rate determination on the project site. (This document is often referred to as "the white sheet.")

- Notify project contractors that if DWD finds that a contractor violated the prevailing wage law, DWD will assess liquidated damages of 100% of the wages owed to employees.

- Obtain an Affidavit of Compliance from each prime contractor before making final payment for the project.

If the total estimated cost of the project exceeds the prevailing wage thresholds, a local governmental unit or state agency also must obtain a prevailing wage rate determination under the following circumstances:

- when a completed facility is leased, purchased, lease-purchased or otherwise acquired by or dedicated to a public entity in lieu of the public entity contracting for the project,

- when one public entity does work for another public entity,

- when a *private* entity will construct a road, street, bridge, sanitary sewer or water main project and dedicate it to a local governmental unit or the state for its ownership or maintenance (except for some residential subdivisions).

For more information, visit the prevailing wage website: http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm. For further assistance, call the Equal Rights Division at 608-266-6861 and ask for prevailing wage.

Department of Workforce Development
Equal Rights Division
P.O. Box 8928
Madison, WI 53708-8928
Telephone: (608) 266-6860
Fax: (608) 267-4592
TTY: (608) 264-8752

STATE OF WISCONSIN
DWD
Department of Workforce Development

Scott Walker, Governor
Reginald J. Newson, Secretary
John P. Conway, Division Administrator

PREVAILING WAGE – Contractors

Any public works project that has a total estimated project cost that equals or exceeds prevailing wage project thresholds requires a prevailing wage rate determination issued by the Department of Workforce Development (DWD). Public works include erecting, constructing, remodeling, repairing, demolishing, alterations, painting and decorating projects for a local governmental unit or state agency. State law excludes minor service or maintenance work, warranty work, or work under a supply-and-installation contract. There is a statutory definition for each of these exclusions. The prevailing wage law that applies to local governmental units and their contractors is §66.0903, Wis. Stats. The prevailing wage law that applies to state agencies and their contractors is §103.49, Wis. Stats. The applicable administrative rules for all prevailing wage projects are DWD 290 and DWD 294, Wis. Adm. Code. These laws include provisions that apply to all contractors and subcontractors working on prevailing wage projects.

Effective July 1, 2011, any contractor or subcontractor working on a local governmental unit or state agency's public works project that equals or exceeds current prevailing wage project thresholds must do all of the following:

- Receive and review the project's prevailing wage rate determination (i.e., white sheet).
- Tell subcontractors the project is subject to state prevailing wage law and include the prevailing wage rate determination in the construction contract, or if there is no written contract, provide a copy of the project determination to each subcontractor.
- Hire subcontractors who do *not* appear on the "Consolidated List of Debarred Contractors."
- Notify subcontractors that if DWD finds that a contractor or subcontractor violated the prevailing wage law, DWD will assess liquidated damages of 100% of the wages owed to employees.

- Apply to DWD for subjourney wage rates prior to employing these individuals on the project.

- Receive and retain a completed Affidavit of Compliance from each subcontractor brought on to the project before providing final payment to those subcontractors.

- Submit a completed Affidavit of Compliance to the contractor who brought the subcontractor on to the project before receiving final payment for the project.

- Maintain payroll records for 3 years that comply with §§66.0903(10)(a) or 103.49(5)(a), Stats. and DWD 274.06.

- Respond to requests from DWD or the project owner to provide payroll records and/or respond to prevailing wage complaints filed by employees or third parties.

For more information, visit the prevailing wage website: http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm. For further assistance, call the Equal Rights Division at 608-266-6861 and ask for prevailing wage.

SUMMARY OF PREVAILING WAGE LAW CHANGES EFFECTIVE JULY 1, 2011

(This document updated 07/27/11)

For further updates on this topic, refer to the prevailing wage website at:
http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm

The recently approved State budget bill (2011 Wisconsin Act 40) includes major changes to prevailing wage laws (§§66.0903, 66.0904, 103.49 & 103.50, Wis. Stats.) effective JULY 1, 2011. Significant changes are described below.

Topic	Who's affected?	Brief description of requirement under §66.0903 or §103.49
Thresholds	All public entities & Contractors	The $25,000 threshold for public works projects has been changed to single-trade and multiple-trade project thresholds as noted below. The new thresholds apply to prevailing wage projects whose prime contract is awarded after June 30, 2011.
Non-applicability: Threshold for Single-Trade Projects	All public entities & Contractors	Any single-trade project of public works with an estimated cost of completion of less than $48,000 does not require a prevailing wage rate determination. "Single-trade project of public works" means a project of public works in which a single trade accounts for 85 percent or more of the total labor cost of the project.
Non-applicability: Threshold for Multiple-Trade Projects	All public entities except cities, towns & villages as noted below & Contractors	Any multiple-trade project of public works with an estimated cost of completion of less than $100,000 does not require a prevailing wage rate determination. "Multiple-trade project of public works" means a project of public works in which no single trade accounts for 85 percent or more of the total labor cost of the project.
Non-applicability: Threshold for Multiple-Trade Projects	Cities or villages with a population less than 2500 & Towns & Contractors	A multiple trade project of public works erected, constructed, repaired, remodeled, or demolished by a private contractor for a city or village with a population less than 2500, or a town with an estimated cost of completion of less than $234,000 does not require a prevailing wage rate determination. "Multiple-trade project of public works" means a project of public works in which no single trade accounts for 85 percent or more of the total labor cost of the project.
Non-applicability: Minor service & maintenance work	Towns & Contractors	The following TOWN projects only do not require a prevailing wage rate determination: • A project not funded under §86.31, Stats. (TRIP projects) that is limited to minor crack filling, chip or slurry sealing or other minor pavement patching, not including overlays. • The depositing of gravel on an existing gravel road applied solely to maintain the road; • Road shoulder maintenance; • Cleaning drainage or sewer ditches or structures; • Any other limited, minor work on public facilities or equipment that is routinely performed to prevent breakdown or deterioration.
Non-applicability: Work which a contractor or individual donates to a public entity	All public entities	Prevailing wage laws §§66.0903 & 103.49, Stats., do not apply to work performed on a project of public works for which the local governmental unit or the state or the state agency contracting for the project is not required to compensate any contractor, subcontractor, contractor's or subcontractor's agent, or individual for performing the work.

Topic	Who's affected?	Brief description of requirement under §66.0903 or §103.49
Non-applicability: Residential	All public entities	A prevailing wage rate determination is not required for the erection, construction, repair, remodeling, or demolition of a residential property containing 2 dwelling units or less.
Non-applicability: Residential subdivision infrastructure	All public entities	A prevailing wage rate determination is not required for a road, street, bridge, sanitary sewer, or water main project that is a part of a development in which at least 90 percent of the lots contain or will contain 2 dwelling units or less, as determined by the local governmental unit at the time of approval of the development, and that, on completion, is acquired by, or dedicated to, a local governmental unit (including under §236.13(2), Stats.), or the state, for ownership or maintenance by the local governmental unit or the state.
Non-applicability: Certain nursing homes	All public entities	Prevailing wage law §66.0903, Stats., does not apply to a project of public works involving the erection, construction, repair, remodeling, or demolition of a nursing home in a county having a population of less than 50,000 when the project commences no later than July 1, 2012.
Electronic certified payroll record	Contractors	The requirement that every contractor on a prevailing wage project submit to DWD monthly a certified record of employees who worked on the project and that DWD post these certified records on its Internet website is discontinued effective July 1, 2011. However, contractors who worked on prevailing wage projects during the period January 1, 2010 through June 30, 2011, must comply with the repealed law for work completed on projects during that period of time.
Payroll record inspection request by any person	Contractors & Complainants	Any person may request DWD to inspect the payroll records of any contractor working on a prevailing wage project. On receipt of such a request, the contractor must submit to DWD a certified record of its payroll records, other than personally identifiable information relating to an employee of the contractor, for no longer than a 4-week period. DWD may request records from a contractor under this provision no more than once per calendar quarter for each project of public works on which the contractor is performing work. The department may not charge a requester a fee for obtaining that information. DWD must make these certified records available for public inspection.
Complaints	Complainants	There are no longer investigation fees.
Statewide uniformity	Local govern-mental units	A local governmental unit may not enact & administer a prevailing wage ordinance/provision for public works or publicly funded private construction projects. Any extant laws to that effect are void.

Topic	Who's affected?	Brief description of requirement under §66.0903, §103.49 or §103.50
Covered employees	Truck drivers & Other workers & Contractors	A laborer, worker, mechanic, or truck driver who is employed to process, manufacture, pick up, or deliver materials or products from a commercial establishment that has a fixed place of business from which the establishment supplies processed or manufactured materials or products or from a facility that is not dedicated exclusively, or nearly so, to a project of public works is NOT entitled to receive the prevailing wage rate UNLESS any of the following applies: 1) the laborer, worker, mechanic, or truck driver is employed to go to the source of mineral aggregate such as sand, gravel, or stone and deliver that mineral aggregate to the site of a project of public works by depositing the material directly in final place, from the transporting vehicle or through spreaders from the transporting vehicle. 2) the laborer, worker, mechanic, or truck driver is employed to go to the site of a project of public works, pick up excavated material or spoil from the site of the project, and transport that excavated material or spoil away from the site of the project.
Annual Prevailing Wage Survey	All public entities	When establishing yearly prevailing wage rates, DWD may not use data from any construction work that is performed by a local governmental unit or a state agency.
Prevailing Wage Rates	DOT & Contractors & Employees	For state highway prevailing wage rates, DWD is required to include wage rates for work performed on Sundays, holidays and shift differentials based on the time of day or night when work is performed.

The 2009-2011 State budget bill (2009 Wisconsin Act 28) created a new prevailing wage law (§66.0904, Wis. Stats.) for PUBLICLY FUNDED PRIVATE CONSTRUCTION PROJECTS effective January 1, 2010. The current 2011-2013 State budget bill (2011 Wisconsin Act 32) REPEALS this law. So the publicly funded private construction projects law only applies to projects that awarded the prime contract during the period January 1, 2010 through June 30, 2011.

SINGLE & MULTIPLE TRADE PROJECT THRESHOLDS FOR §§66.0903 & 103.49, Wis. Stats. Effective July 1, 2011

The $25,000 threshold for public works projects has been changed to single-trade and multiple-trade project thresholds as described below. Projects of public works with total estimated costs of completion that equal or exceed these thresholds require a prevailing wage rate determination.

SINGLE-TRADE THRESHOLD

A "single-trade project of public works" means a project in which a single trade accounts for 85 percent or more of the total labor cost of the project.

The single trade threshold is $48,000.

MULTIPLE-TRADE THRESHOLDS

A "multiple-trade project of public works" means a project in which no single trade accounts for 85 percent or more of the total labor cost of the project.

(a) The multiple-trade threshold is $100,000, unless a municipality falls under the description in (b).

(b) The multiple-trade threshold of $234,000 applies to public works projects erected, constructed, repaired, remodeled, or demolished by a private contractor for:

- a city or village with a population less than 2500, or
- a town

APPLYING THE NEW THRESHOLDS

The department will apply the new single-trade & multiple-trade prevailing wage thresholds to projects of public works for which the prime contract is awarded on or after July 1, 2011.

FEBRUARY 1999

NOTICE TO BIDDERS
WAGE RATE DECISION

The wage rate decision of the Secretary of Labor which has been incorporated in these advertised specifications is incomplete in that the classifications may be omitted from the Secretary of Labor's decision.

Since the bidder is responsible, independently, for ascertaining area practice with respect to the necessity, or lack of necessity, for the use of these classifications in the prosecution of the work contemplated by this project, no inference may be drawn from the omision of these classifications concerning prevailing area practices relative to their use. Further, this omission will not, per se, be construed as establishing any governmental liability for increased labor cost if it is subsequently determined that such classifications are required.

There may be omissions and/or errors in the federal wage rates. The bidder is responsible for evaluating and determining the correct applicable rate. The higher of state or federal rate will apply.

CONTRACT: 20130108006 PROJECT(S): 1060-33-70 FEDERAL ID(S): WISC 2013001

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SECTION 0001 ROADWAY ITEMS					
0010	108.3100.S INCENTIVE/DISINCENTIVE FOR INTERIM COMPLETION OF WORK 0001. BLUEMOUND RD	0.100 CD	3000.00000		300.00	
0020	108.3100.S INCENTIVE/DISINCENTIVE FOR INTERIM COMPLETION OF WORK 0002. WATERTOWN PLANK RD	0.100 CD	20000.00000		2000.00	
0030	108.4400 CPM PROGRESS SCHEDULE	1.000 EACH	.		.	
0040	201.0105 CLEARING	58.000 STA	.		.	
0050	201.0120 CLEARING	1,101.000 ID	.		.	
0060	201.0205 GRUBBING	58.000 STA	.		.	
0070	201.0220 GRUBBING	1,101.000 ID	.		.	
0080	203.0200 REMOVING OLD STRUCTURE (STATION) 0001. STATIONS 587SN+00 AND 595SS+00	LUMP	LUMP		.	

CONTRACT: 20130108006 PROJECT(S): 1060-33-70 FEDERAL ID(S): WISC 2013001

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0090	203.0225.S DEBRIS CONTAINMENT (STRUCTURE) 0001. B-40-433	LUMP	LUMP			.
0100	204.0100 REMOVING PAVEMENT **P**	105,536.000 SY		.		.
0110	204.0110 REMOVING ASPHALTIC SURFACE **P**	1,222.000 SY		.		.
0120	204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS	59.000 SY		.		.
0130	204.0150 REMOVING CURB & GUTTER **P**	23,283.000 LF		.		.
0140	204.0155 REMOVING CONCRETE SIDEWALK **P**	9,444.000 SY		.		.
0150	204.0170 REMOVING FENCE **P**	2,966.000 LF		.		.
0160	204.0195 REMOVING CONCRETE BASES	140.000 EACH		.		.
0170	204.0210 REMOVING MANHOLES	58.000 EACH		.		.
0180	204.0220 REMOVING INLETS	152.000 EACH		.		.
0190	204.0245 REMOVING STORM SEWER (SIZE) 0001. 12-INCH **P**	8,794.000 LF		.		.

CONTRACT: 20130108006 PROJECT(S): 1060-33-70 FEDERAL ID(S): WISC 2013001

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0200	204.0245 REMOVING STORM SEWER (SIZE) 0002. 15-INCH **P**	539.000 LF		.		.
0210	204.0245 REMOVING STORM SEWER (SIZE) 0003. 18-INCH **P**	392.000 LF		.		.
0220	204.0245 REMOVING STORM SEWER (SIZE) 0004. 21-INCH **P**	940.000 LF		.		.
0230	204.0245 REMOVING STORM SEWER (SIZE) 0005. 24-INCH **P**	1,664.000 LF		.		.
0240	204.0245 REMOVING STORM SEWER (SIZE) 0006. 30-INCH **P**	911.000 LF		.		.
0250	204.0245 REMOVING STORM SEWER (SIZE) 0007. 36-INCH **P**	947.000 LF		.		.
0260	204.0245 REMOVING STORM SEWER (SIZE) 0008. 42-INCH **P**	2,063.000 LF		.		.
0270	204.0245 REMOVING STORM SEWER (SIZE) 0010. 54-INCH **P**	116.000 LF		.		.
0280	204.0245 REMOVING STORM SEWER (SIZE) 0011. 60-INCH **P**	257.000 LF		.		.
0290	204.0245 REMOVING STORM SEWER (SIZE) 0012. 66-INCH **P**	284.000 LF		.		.
0300	204.0245 REMOVING STORM SEWER (SIZE) 0013. 72-INCH **P**	745.000 LF		.		.

CONTRACT: 20130108006 PROJECT(S): 1060-33-70 FEDERAL ID(S): WISC 2013001

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0310	204.0245 REMOVING STORM SEWER (SIZE) 0014. 43X68-INCH **P**	177.000 LF		.		.
0320	204.0280 SEALING PIPES	15.000 EACH		.		.
0330	204.0291.S ABANDONING SEWER	296.000 CY		.		.
0340	205.0100 EXCAVATION COMMON	201,875.000 CY		.		.
0350	205.0501.S EXCAVATION, HAULING, AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL	5,700.000 TON		.		.
0360	206.1000 EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 0001. B-40-433	LUMP	LUMP			.
0370	206.3000 EXCAVATION FOR STRUCTURES RETAINING WALLS (STRUCTURE) 0001. R-40-476	LUMP	LUMP			.
0380	206.3000 EXCAVATION FOR STRUCTURES RETAINING WALLS (STRUCTURE) 0002. R-40-477	LUMP	LUMP			.
0390	206.6000.S TEMPORARY SHORING	3,515.000 SF		.		.
0400	208.0100 BORROW	1,352.000 CY		.		.

CONTRACT: 20130108006 PROJECT(S): 1060-33-70 FEDERAL ID(S): WISC 2013001

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0410	209.0100 BACKFILL GRANULAR	1,725.000 CY		.		.
0420	210.0100 BACKFILL STRUCTURE	1,455.000 CY		.		.
0430	213.0100 FINISHING ROADWAY (PROJECT) 0001. 1060-33-70	1.000 EACH		.		.
0440	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH	80,032.000 TON		.		.
0450	312.0110 SELECT CRUSHED MATERIAL	112,752.000 TON		.		.
0460	415.0080 CONCRETE PAVEMENT 8-INCH **P**	105,634.000 SY		.		.
0470	415.0210 CONCRETE PAVEMENT GAPS	104.000 EACH		.		.
0480	415.1080 CONCRETE PAVEMENT HES 8-INCH	20,790.000 SY		.		.
0490	416.0260 CONCRETE DRIVEWAY HES 6-INCH	1,282.000 SY		.		.
0500	416.0610 DRILLED TIE BARS	497.000 EACH		.		.
0510	440.4410.S INCENTIVE IRI RIDE	36,394.000 DOL	1.00000		36394.00	

CONTRACT: 20130108006 PROJECT(S): 1060-33-70 FEDERAL ID(S): WISC 2013001

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0520	455.0115 ASPHALTIC MATERIAL PG64-22	42.000 TON		.		.
0530	455.0605 TACK COAT	58.000 GAL		.		.
0540	460.1101 HMA PAVEMENT TYPE E-1	680.000 TON		.		.
0550	460.2000 INCENTIVE DENSITY HMA PAVEMENT	440.000 DOL		.		.
0560	465.0105 ASPHALTIC SURFACE	2,217.000 TON		.		.
0570	465.0125 ASPHALTIC SURFACE TEMPORARY	9,191.000 TON		.		.
0580	502.0100 CONCRETE MASONRY BRIDGES	2,322.000 CY		.		.
0590	502.3200 PROTECTIVE SURFACE TREATMENT	352.000 SY		.		.
0600	502.5002 MASONRY ANCHORS TYPE L NO. 4 BARS	29.000 EACH		.		.
0610	502.5005 MASONRY ANCHORS TYPE L NO. 5 BARS	291.000 EACH		.		.
0620	502.5025 MASONRY ANCHORS TYPE L NO. 9 BARS	144.000 EACH		.		.

CONTRACT: 20130108006 PROJECT(S): 1060-33-70 FEDERAL ID(S): WISC 2013001

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0630	504.0500 CONCRETE MASONRY RETAINING WALLS	884.000 CY		.		.
0640	505.0405 BAR STEEL REINFORCEMENT HS BRIDGES	57,780.000 LB		.		.
0650	505.0605 BAR STEEL REINFORCEMENT HS COATED BRIDGES	107,900.000 LB		.		.
0660	505.0615 BAR STEEL REINFORCEMENT HS COATED RETAINING WALLS	98,130.000 LB		.		.
0670	506.0605 STRUCTURAL STEEL HS	2,230.000 LB		.		.
0680	506.2605 BEARING PADS ELASTOMERIC NON-LAMINATED	160.000 EACH		.		.
0690	506.3008 WELDED STUD SHEAR CONNECTORS 5/8X5-INCH	280.000 EACH		.		.
0700	512.0500 PILING STEEL SHEET PERMANENT DELIVERED	2,525.000 SF		.		.
0710	512.0600 PILING STEEL SHEET PERMANENT DRIVEN	2,525.000 SF		.		.
0720	512.1000 PILING STEEL SHEET TEMPORARY	1,060.000 SF		.		.
0730	516.0100 DAMPPROOFING	1,614.000 SY		.		.

CONTRACT: 20130108006 PROJECT(S): 1060-33-70 FEDERAL ID(S): WISC 2013001

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0740	516.0500 RUBBERIZED MEMBRANE WATERPROOFING	148.000 SY		.		.
0750	517.1010.S CONCRETE STAINING (STRUCTURE) 0001. B-40-433	1,303.000 SF		.		.
0760	517.1010.S CONCRETE STAINING (STRUCTURE) 0002. R-40-475	1,140.000 SF		.		.
0770	517.1010.S CONCRETE STAINING (STRUCTURE) 0003. R-40-476	1,333.000 SF		.		.
0780	517.1010.S CONCRETE STAINING (STRUCTURE) 0004. R-40-477	895.000 SF		.		.
0790	520.8000 CONCRETE COLLARS FOR PIPE	57.000 EACH		.		.
0800	522.1018 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 18-INCH	1.000 EACH		.		.
0810	522.1024 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 24-INCH	4.000 EACH		.		.
0820	522.1042 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 42-INCH	1.000 EACH		.		.
0830	522.1048 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 48-INCH	1.000 EACH		.		.

CONTRACT: 20130108006 PROJECT(S): 1060-33-70 FEDERAL ID(S): WISC 2013001

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0840	522.1072 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 72-INCH	1.000 EACH		.		.
0850	601.0110 CONCRETE CURB TYPE D **P**	1,431.000 LF		.		.
0860	601.0319 CONCRETE CURB & GUTTER 19-INCH	9,072.000 LF		.		.
0870	601.0322 CONCRETE CURB & GUTTER 22-INCH **P**	10.000 LF		.		.
0880	601.0331 CONCRETE CURB & GUTTER 31-INCH **P**	38,038.000 LF		.		.
0890	601.0407 CONCRETE CURB & GUTTER 18-INCH TYPE D	475.000 LF		.		.
0900	601.0411 CONCRETE CURB & GUTTER 30-INCH TYPE D **P**	115.000 LF		.		.
0910	601.0600 CONCRETE CURB PEDESTRIAN **P**	521.000 LF		.		.
0920	602.0410 CONCRETE SIDEWALK 5-INCH **P**	111,964.000 SF		.		.
0930	602.0415 CONCRETE SIDEWALK 6-INCH **P**	478.000 SF		.		.

CONTRACT: 20130108006 PROJECT(S): 1060-33-70 FEDERAL ID(S): WISC 2013001

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0940	602.0515 CURB RAMP DETECTABLE WARNING FIELD NATURAL PATINA	996.000 SF		.		.
0950	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED	15,104.000 LF		.		.
0960	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED	17,604.000 LF		.		.
0970	606.0200 RIPRAP MEDIUM	571.000 CY		.		.
0980	608.0312 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH	221.000 LF		.		.
0990	608.0315 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 15-INCH	6,413.000 LF		.		.
1000	608.0318 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 18-INCH	627.000 LF		.		.
1010	608.0321 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 21-INCH	364.000 LF		.		.
1020	608.0324 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 24-INCH	4,647.000 LF		.		.
1030	608.0330 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 30-INCH	1,374.000 LF		.		.
1040	608.0336 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 36-INCH	778.000 LF		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1050	608.0342 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 42-INCH	3,422.000 LF		.		.
1060	608.0348 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 48-INCH	977.000 LF		.		.
1070	608.0354 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 54-INCH	239.000 LF		.		.
1080	608.0360 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 60-INCH	1,035.000 LF		.		.
1090	608.0372 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 72-INCH	461.000 LF		.		.
1100	608.0384 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 84-INCH	382.000 LF		.		.
1110	608.0396 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 96-INCH	731.000 LF		.		.
1120	610.0114 STORM SEWER PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-III 14X23-INCH	51.000 LF		.		.
1130	610.0119 STORM SEWER PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-III 19X30-INCH	79.000 LF		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1140	610.0124 STORM SEWER PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-III 24X38-INCH	148.000 LF		.		.
1150	610.0148 STORM SEWER PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-III 48X76-INCH	192.000 LF		.		.
1160	611.0420 RECONSTRUCTING MANHOLES	1.000 EACH		.		.
1170	611.0430 RECONSTRUCTING INLETS	1.000 EACH		.		.
1180	611.0535 MANHOLE COVERS TYPE J-SPECIAL	33.000 EACH		.		.
1190	611.0612 INLET COVERS TYPE C	7.000 EACH		.		.
1200	611.0642 INLET COVERS TYPE MS	4.000 EACH		.		.
1210	611.0648 INLET COVERS TYPE R	235.000 EACH		.		.
1220	611.2004 MANHOLES 4-FT DIAMETER	222.000 EACH		.		.
1230	611.2005 MANHOLES 5-FT DIAMETER	34.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1240	611.2006 MANHOLES 6-FT DIAMETER	40.000 EACH		.		.
1250	611.2007 MANHOLES 7-FT DIAMETER	14.000 EACH		.		.
1260	611.2008 MANHOLES 8-FT DIAMETER	11.000 EACH		.		.
1270	611.3901 INLETS MEDIAN 1 GRATE	4.000 EACH		.		.
1280	611.8115 ADJUSTING INLET COVERS	4.000 EACH		.		.
1290	611.8120.S COVER PLATES TEMPORARY	54.000 EACH		.		.
1300	611.9710 SALVAGED INLET COVERS	1.000 EACH		.		.
1310	611.9800.S PIPE GRATES	3.000 EACH		.		.
1320	612.0206 PIPE UNDERDRAIN UNPERFORATED 6-INCH	540.000 LF		.		.
1330	612.0406 PIPE UNDERDRAIN WRAPPED 6-INCH	2,204.000 LF		.		.
1340	614.0905 CRASH CUSHIONS TEMPORARY	32.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1350	616.0206 FENCE CHAIN LINK 6-FT	953.000 LF		.		.
1360	616.0208 FENCE CHAIN LINK 8-FT	145.000 LF		.		.
1370	616.0329 GATES CHAIN LINK (WIDTH) 0001. 3. 5-FT	2.000 EACH		.		.
1380	616.0600.S FENCE TEMPORARY	3,997.000 LF		.		.
1390	616.0800.S FENCE TRACK CLEARANCE	630.000 LF		.		.
1400	618.0100 MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 0001. 1060-33-70	1.000 EACH		.		.
1410	619.1000 MOBILIZATION	1.000 EACH		.		.
1420	620.0100 CONCRETE CORRUGATED MEDIAN **P**	2,103.000 SF		.		.
1430	620.0300 CONCRETE MEDIAN SLOPED NOSE **P**	3,498.000 SF		.		.
1440	623.0200 DUST CONTROL SURFACE TREATMENT	228,649.000 SY		.		.
1450	624.0100 WATER	480.000 MGAL		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1460	625.0105 TOPSOIL **P**	8,710.000 CY		.		.
1470	627.0200 MULCHING **P**	574.000 SY		.		.
1480	628.1104 EROSION BALES	390.000 EACH		.		.
1490	628.1504 SILT FENCE	6,248.000 LF		.		.
1500	628.1520 SILT FENCE MAINTENANCE	6,248.000 LF		.		.
1510	628.1905 MOBILIZATIONS EROSION CONTROL	4.000 EACH		.		.
1520	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL	4.000 EACH		.		.
1530	628.2004 EROSION MAT CLASS I TYPE B	24,935.000 SY		.		.
1540	628.2027 EROSION MAT CLASS II TYPE C	3,839.000 SY		.		.
1550	628.6510 SOIL STABILIZER TYPE B	2.000 ACRE		.		.
1560	628.7005 INLET PROTECTION TYPE A	340.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1570	628.7010 INLET PROTECTION TYPE B	43.000 EACH		.		.
1580	628.7015 INLET PROTECTION TYPE C	378.000 EACH		.		.
1590	628.7020 INLET PROTECTION TYPE D	55.000 EACH		.		.
1600	628.7555 CULVERT PIPE CHECKS	3.000 EACH		.		.
1610	628.7560 TRACKING PADS	2.000 EACH		.		.
1620	628.7570 ROCK BAGS	250.000 EACH		.		.
1630	629.0205 FERTILIZER TYPE A	9.600 CWT		.		.
1640	629.0210 FERTILIZER TYPE B	23.500 CWT		.		.
1650	630.0120 SEEDING MIXTURE NO. 20	838.000 LB		.		.
1660	630.0175 SEEDING MIXTURE NO. 75	21.000 LB		.		.
1670	630.0400 SEEDING NURSE CROP	24.000 LB		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1680	631.0300 SOD WATER	617.000 MGAL		.		.
1690	631.1000 SOD LAWN	25,722.000 SY		.		.
1700	632.0101 TREES (SPECIES, ROOT, SIZE) 0001. BIRCH, RIVER, B&B 2 1/2-INCH CAL	20.000 EACH		.		.
1710	632.0101 TREES (SPECIES, ROOT, SIZE) 0002. ELM, NEW HORIZON, B&B 2 1/2-INCH CAL	16.000 EACH		.		.
1720	632.0101 TREES (SPECIES, ROOT, SIZE) 0003. GINKO - MALE ONLY, B&B 2 1/2-INCH CAL	6.000 EACH		.		.
1730	632.0101 TREES (SPECIES, ROOT, SIZE) 0004. HACKBERRY, COMMON, B&B 2 1/2-INCH CAL	18.000 EACH		.		.
1740	632.0101 TREES (SPECIES, ROOT, SIZE) 0005. KATSURATREE, B&B 2 1/2-INCH CAL	5.000 EACH		.		.
1750	632.0101 TREES (SPECIES, ROOT, SIZE) 0006. OAK, SWAMP WHITE, B&B 2 1/2-INCH CAL	21.000 EACH		.		.
1760	632.0101 TREES (SPECIES, ROOT, SIZE) 0007. TREE, MAPLE, MIYABE B&B 2 1/2-INCH CAL	9.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1770	632.0101 TREES (SPECIES, ROOT, SIZE) 0008. TREE, TULIP, B&B 2 1/2-INCH CAL	12.000 EACH		.		.
1780	632.0101 TREES (SPECIES, ROOT, SIZE) 0009. CRABAPPLE, GOLDEN RAINDROPS, B&B 2-INCH CAL	13.000 EACH		.		.
1790	632.0101 TREES (SPECIES, ROOT, SIZE) 0010. HAWTHORN, THORNLESS COCKSPUR, B&B 2-INCH CAL	29.000 EACH		.		.
1800	632.0101 TREES (SPECIES, ROOT, SIZE) 0011. LILAC, IVORY SILK TREE, B&B 2-INCH CAL	19.000 EACH		.		.
1810	632.0101 TREES (SPECIES, ROOT, SIZE) 0012. PEAR, AUTUMN BLAZE, B&B 2-INCH CAL	47.000 EACH		.		.
1820	632.0101 TREES (SPECIES, ROOT, SIZE) 0013. SERVICEBERRY, SHADBLOW, B&B 2-INCH CAL	9.000 EACH		.		.
1830	632.0101 TREES (SPECIES, ROOT, SIZE) 0014. WITCHHAZEL, COMMON, CONT 36-INCH HT	8.000 EACH		.		.
1840	632.0101 TREES (SPECIES, ROOT, SIZE) 0015. REDCEDAR, EASTERN, B&B 60-INCH HT	6.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1850	632.0101 TREES (SPECIES, ROOT, SIZE) 0017. SPRUCE, WHITE, B&B 60-INCH HT	14.000 EACH		.		.
1860	632.0101 TREES (SPECIES, ROOT, SIZE) 0018. DOGWOOD, GRAY, CONT 24-INCH HT	16.000 EACH		.		.
1870	632.0101 TREES (SPECIES, ROOT, SIZE) 0019. DOGWOOD, RED, CONT 24-INCH HT	23.000 EACH		.		.
1880	632.0101 TREES (SPECIES, ROOT, SIZE) 0020. SUMAC, SMOOTH, CONT 24-INCH HT	13.000 EACH		.		.
1890	632.0101 TREES (SPECIES, ROOT, SIZE) 0021. SUMAC, GRO LOW, CONT 24-INCH HT	75.000 EACH		.		.
1900	632.0101 TREES (SPECIES, ROOT, SIZE) 0022. VIBURNUM, ARROWWOOD, CONT 24-INCH HT	42.000 EACH		.		.
1910	632.0101 TREES (SPECIES, ROOT, SIZE) 0023. VIBURNUM, COMPACT CRANBERRY, CONT 24-INCH HT	45.000 EACH		.		.
1920	632.9101 LANDSCAPE PLANTING SURVEILLANCE AND CARE CYCLES	24.000 EACH		.		.
1930	634.0616 POSTS WOOD 4X6-INCH X 16-FT	87.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1940	634.0618 POSTS WOOD 4X6-INCH X 18-FT	81.000 EACH		.		.
1950	634.0816 POSTS TUBULAR STEEL 2X2-INCH X 16-FT	157.000 EACH		.		.
1960	637.0101 SIGNS TYPE I	1,189.000 SF		.		.
1970	637.0202 SIGNS REFLECTIVE TYPE II	3,987.750 SF		.		.
1980	637.0402 SIGNS REFLECTIVE FOLDING TYPE II	365.540 SF		.		.
1990	638.2102 MOVING SIGNS TYPE II	3.000 EACH		.		.
2000	638.2602 REMOVING SIGNS TYPE II	343.000 EACH		.		.
2010	638.3000 REMOVING SMALL SIGN SUPPORTS	175.000 EACH		.		.
2020	641.8100 OVERHEAD SIGN SUPPORT (STRUCTURE) 0001. S-40-943	LUMP	LUMP			.
2030	641.8100 OVERHEAD SIGN SUPPORT (STRUCTURE) 0002. S-40-944	LUMP	LUMP			.
2040	641.8100 OVERHEAD SIGN SUPPORT (STRUCTURE) 0003. S-40-945	LUMP	LUMP			.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2050	641.8100 OVERHEAD SIGN SUPPORT (STRUCTURE) 0004. S-40-946	LUMP	LUMP			.
2060	641.8100 OVERHEAD SIGN SUPPORT (STRUCTURE) 0005. S-40-947	LUMP	LUMP			.
2070	641.8100 OVERHEAD SIGN SUPPORT (STRUCTURE) 0006. S-40-948	LUMP	LUMP			.
2080	641.8100 OVERHEAD SIGN SUPPORT (STRUCTURE) 0007. S-40-949	LUMP	LUMP			.
2090	641.8100 OVERHEAD SIGN SUPPORT (STRUCTURE) 0008. S-40-951	LUMP	LUMP			.
2100	641.8100 OVERHEAD SIGN SUPPORT (STRUCTURE) 0009. S-40-952	LUMP	LUMP			.
2110	641.8100 OVERHEAD SIGN SUPPORT (STRUCTURE) 0010. S-40-634	LUMP	LUMP			.
2120	641.8100 OVERHEAD SIGN SUPPORT (STRUCTURE) 0011. S-40-445	LUMP	LUMP			.
2130	641.8100 OVERHEAD SIGN SUPPORT (STRUCTURE) 0012. S-40-446	LUMP	LUMP			.
2140	643.0200 TRAFFIC CONTROL SURVEILLANCE AND MAINTENANCE (PROJECT) 0001. 1060-33-70	260.000 DAY		.		.
2150	643.0300 TRAFFIC CONTROL DRUMS	241,696.000 DAY		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2160	643.0420 TRAFFIC CONTROL BARRICADES TYPE III	29,290.000 DAY		.		.
2170	643.0500 TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER POSTS	762.000 EACH		.		.
2180	643.0600 TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER BASES	762.000 EACH		.		.
2190	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A	58,509.000 DAY		.		.
2200	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C	12,581.000 DAY		.		.
2210	643.0800 TRAFFIC CONTROL ARROW BOARDS	337.000 DAY		.		.
2220	643.0900 TRAFFIC CONTROL SIGNS	66,068.000 DAY		.		.
2230	643.0910 TRAFFIC CONTROL COVERING SIGNS TYPE I	78.000 EACH		.		.
2240	643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II	169.000 EACH		.		.
2250	643.1000 TRAFFIC CONTROL SIGNS FIXED MESSAGE	5,162.810 SF		.		.
2260	643.1050 TRAFFIC CONTROL SIGNS PCMS	1,728.000 DAY		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2270	643.2000 TRAFFIC CONTROL DETOUR (PROJECT) 0001. 1060-33-70	1.000 EACH		.		.
2280	643.3000 TRAFFIC CONTROL DETOUR SIGNS	21,492.000 DAY		.		.
2290	645.0120 GEOTEXTILE FABRIC TYPE HR	1,139.000 SY		.		.
2300	645.0130 GEOTEXTILE FABRIC TYPE R	601.000 SY		.		.
2310	646.0103 PAVEMENT MARKING PAINT 4-INCH	59,261.000 LF		.		.
2320	646.0106 PAVEMENT MARKING EPOXY 4-INCH	34,670.000 LF		.		.
2330	646.0123 PAVEMENT MARKING PAINT 8-INCH	5,675.000 LF		.		.
2340	646.0126 PAVEMENT MARKING EPOXY 8-INCH	306.000 LF		.		.
2350	646.0600 REMOVING PAVEMENT MARKINGS	36,229.000 LF		.		.
2360	646.0841.S PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH	16,837.000 LF		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2370	646.0843.S PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 8-INCH	20,471.000 LF		.		.
2380	647.0166 PAVEMENT MARKING ARROWS EPOXY TYPE 2	2.000 EACH		.		.
2390	647.0356 PAVEMENT MARKING WORDS EPOXY	2.000 EACH		.		.
2400	647.0456 PAVEMENT MARKING CURB EPOXY	1,704.000 LF		.		.
2410	647.0526 PAVEMENT MARKING YIELD LINE SYMBOLS EPOXY 18-INCH	16.000 EACH		.		.
2420	647.0566 PAVEMENT MARKING STOP LINE EPOXY 18-INCH	63.000 LF		.		.
2430	647.0606 PAVEMENT MARKING ISLAND NOSE EPOXY	33.000 EACH		.		.
2440	647.0726 PAVEMENT MARKING DIAGONAL EPOXY 12-INCH	267.000 LF		.		.
2450	647.0766 PAVEMENT MARKING CROSSWALK EPOXY 6-INCH	62.000 LF		.		.
2460	649.0400 TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH	104,358.000 LF		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2470	649.0801 TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 8-INCH	13,995.000 LF		.		.
2480	649.1200 TEMPORARY PAVEMENT MARKING STOP LINE REMOVABLE TAPE 18-INCH	1,282.000 LF		.		.
2490	652.0125 CONDUIT RIGID METALLIC 2-INCH	23.000 LF		.		.
2500	652.0215 CONDUIT RIGID NONMETALLIC SCHEDULE 40 1 1/4-INCH	217.000 LF		.		.
2510	652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	12,740.000 LF		.		.
2520	652.0230 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2 1/2-INCH	135.000 LF		.		.
2530	652.0235 CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH	12,238.000 LF		.		.
2540	652.0405 CONDUIT REINFORCED THERMOSETTING RESIN 2-INCH	40.000 LF		.		.
2550	652.0700.S INSTALL CONDUIT INTO EXISTING ITEM	3.000 EACH		.		.
2560	653.0135 PULL BOXES STEEL 24X36-INCH	37.000 EACH		.		.
2570	653.0140 PULL BOXES STEEL 24X42-INCH	117.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2580	653.0220 JUNCTION BOXES 18X6X6-INCH	7.000 EACH		.		.
2590	653.0905 REMOVING PULL BOXES	109.000 EACH		.		.
2600	654.0101 CONCRETE BASES TYPE 1	19.000 EACH		.		.
2610	654.0102 CONCRETE BASES TYPE 2	12.000 EACH		.		.
2620	654.0105 CONCRETE BASES TYPE 5	101.000 EACH		.		.
2630	654.0110 CONCRETE BASES TYPE 10	12.000 EACH		.		.
2640	654.0113 CONCRETE BASES TYPE 13	16.000 EACH		.		.
2650	654.0217 CONCRETE CONTROL CABINET BASES TYPE 9 SPECIAL	9.000 EACH		.		.
2660	655.0126 CABLE IN DUCT 3-6 AWG	1,627.000 LF		.		.
2670	655.0144 CABLE IN DUCT 4-4 AWG	392.000 LF		.		.
2680	655.0146 CABLE IN DUCT 4-6 AWG	4,595.000 LF		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS		UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2690	655.0230 CABLE TRAFFIC SIGNAL 5-14 AWG	5,130.000	LF		.		.
2700	655.0240 CABLE TRAFFIC SIGNAL 7-14 AWG	3,169.000	LF		.		.
2710	655.0260 CABLE TRAFFIC SIGNAL 12-14 AWG	13,580.000	LF		.		.
2720	655.0320 CABLE TYPE UF 2-10 AWG GROUNDED	4,397.000	LF		.		.
2730	655.0515 ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG	10,573.000	LF		.		.
2740	655.0610 ELECTRICAL WIRE LIGHTING 12 AWG	25,996.000	LF		.		.
2750	655.0615 ELECTRICAL WIRE LIGHTING 10 AWG	311.000	LF		.		.
2760	655.0620 ELECTRICAL WIRE LIGHTING 8 AWG	6,942.000	LF		.		.
2770	655.0625 ELECTRICAL WIRE LIGHTING 6 AWG	33,490.000	LF		.		.
2780	655.0630 ELECTRICAL WIRE LIGHTING 4 AWG	19,536.000	LF		.		.
2790	655.0635 ELECTRICAL WIRE LIGHTING 2 AWG	488.000	LF		.		.

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2800	655.0900 TRAFFIC SIGNAL EVP DETECTOR CABLE	5,071.000 LF		.		.
2810	656.0200 ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0001. CCTV-40-0100	LUMP	LUMP			.
2820	656.0200 ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0002. DMS-40-0115	LUMP	LUMP			.
2830	656.0200 ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0003. CCTV-40-0104	LUMP	LUMP			.
2840	656.0200 ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0004. DMS-40-0116	LUMP	LUMP			.
2850	656.0200 ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0005. CCTV-40-0111	LUMP	LUMP			.
2860	656.0200 ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0006. USH 18 & STH 100	LUMP	LUMP			.
2870	656.0200 ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0007. STH 100 & W. WISCONSIN AVENUE	LUMP	LUMP			.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	656.0200 ELECTRICAL					
2880	SERVICE METER BREAKER	LUMP	LUMP			
	PEDESTAL (LOCATION)					
	0008. STH 100 & W.					
	POTTER ROAD / W.					
	RESEARCH DRIVE					.
	656.0200 ELECTRICAL					
2890	SERVICE METER BREAKER	LUMP	LUMP			
	PEDESTAL (LOCATION)					
	0009. STH 100 & W.					
	WATERTOWN PLANK ROAD					.
	656.0400 ELECTRICAL					
2900	SERVICE MAIN LUGS ONLY	LUMP	LUMP			
	METER PEDESTAL					
	(LOCATION) 0001. 80T					
	DISTRIBUTION CENTER					.
	656.0400 ELECTRICAL					
2910	SERVICE MAIN LUGS ONLY	LUMP	LUMP			
	METER PEDESTAL					
	(LOCATION) 0002. 86T					
	DISTRIBUTION CENTER					.
	656.0400 ELECTRICAL					
2920	SERVICE MAIN LUGS ONLY	LUMP	LUMP			
	METER PEDESTAL					
	(LOCATION) 0003. TT					
	DISTRIBUTION CENTER					.
	656.0400 ELECTRICAL					
2930	SERVICE MAIN LUGS ONLY	LUMP	LUMP			
	METER PEDESTAL					
	(LOCATION) 0004. 80					
	DISTRIBUTION CENTER					.
	656.0400 ELECTRICAL					
2940	SERVICE MAIN LUGS ONLY	LUMP	LUMP			
	METER PEDESTAL					
	(LOCATION) 0005. RP					
	DISTRIBUTION CENTER					.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2950	657.0100 PEDESTAL BASES	21.000 EACH		.		.
2960	657.0255 TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE	117.000 EACH		.		.
2970	657.0305 POLES TYPE 2	5.000 EACH		.		.
2980	657.0310 POLES TYPE 3	1.000 EACH		.		.
2990	657.0315 POLES TYPE 4	7.000 EACH		.		.
3000	657.0322 POLES TYPE 5-ALUMINUM	104.000 EACH		.		.
3010	657.0420 TRAFFIC SIGNAL STANDARDS ALUMINUM 13-FT	12.000 EACH		.		.
3020	657.0430 TRAFFIC SIGNAL STANDARDS ALUMINUM 10-FT	9.000 EACH		.		.
3030	657.0609 LUMINAIRE ARMS SINGLE MEMBER 4-INCH CLAMP 6-FT	9.000 EACH		.		.
3040	657.0610 LUMINAIRE ARMS SINGLE MEMBER 4 1/2-INCH CLAMP 6-FT	3.000 EACH		.		.
3050	657.0615 LUMINAIRE ARMS SINGLE MEMBER 4 1/2-INCH CLAMP 8-FT	161.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
3060	657.1345 INSTALL POLES TYPE 9	1.000 EACH		.		.
3070	657.1350 INSTALL POLES TYPE 10	11.000 EACH		.		.
3080	657.1355 INSTALL POLES TYPE 12	13.000 EACH		.		.
3090	657.1360 INSTALL POLES TYPE 13	3.000 EACH		.		.
3100	657.1515 INSTALL MONOTUBE ARMS 15-FT	4.000 EACH		.		.
3110	657.1525 INSTALL MONOTUBE ARMS 25-FT	4.000 EACH		.		.
3120	657.1530 INSTALL MONOTUBE ARMS 30-FT	4.000 EACH		.		.
3130	657.1535 INSTALL MONOTUBE ARMS 35-FT	4.000 EACH		.		.
3140	657.1540 INSTALL MONOTUBE ARMS 40-FT	3.000 EACH		.		.
3150	657.1545 INSTALL MONOTUBE ARMS 45-FT	2.000 EACH		.		.
3160	657.1550 INSTALL MONOTUBE ARMS 50-FT	3.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
3170	657.1555 INSTALL MONOTUBE ARMS 55-FT	4.000 EACH		.		.
3180	657.1815 INSTALL LUMINAIRE ARMS STEEL 15-FT	25.000 EACH		.		.
3190	658.0110 TRAFFIC SIGNAL FACE 3-12 INCH VERTICAL	100.000 EACH		.		.
3200	658.0215 BACKPLATES SIGNAL FACE 3 SECTION 12-INCH	62.000 EACH		.		.
3210	658.0416 PEDESTRIAN SIGNAL FACE 16-INCH	42.000 EACH		.		.
3220	658.0500 PEDESTRIAN PUSH BUTTONS	36.000 EACH		.		.
3230	658.0600 LED MODULES 12-INCH RED BALL	61.000 EACH		.		.
3240	658.0605 LED MODULES 12-INCH YELLOW BALL	49.000 EACH		.		.
3250	658.0610 LED MODULES 12-INCH GREEN BALL	49.000 EACH		.		.
3260	658.0615 LED MODULES 12-INCH RED ARROW	39.000 EACH		.		.
3270	658.0620 LED MODULES 12-INCH YELLOW ARROW	51.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
3280	658.0625 LED MODULES 12-INCH GREEN ARROW	51.000 EACH		.		.
3290	658.0635 LED MODULES PEDESTRIAN COUNTDOWN TIMER 16-INCH	42.000 EACH		.		.
3300	658.5069 SIGNAL MOUNTING HARDWARE (LOCATION) 0001. USH 18 & STH 100	LUMP	LUMP			.
3310	658.5069 SIGNAL MOUNTING HARDWARE (LOCATION) 0002. STH 100 & W. WISCONSIN AVENUE	LUMP	LUMP			.
3320	658.5069 SIGNAL MOUNTING HARDWARE (LOCATION) 0003. STH 100 & W. POTTER ROAD / W. RESEARCH DRIVE	LUMP	LUMP			.
3330	658.5069 SIGNAL MOUNTING HARDWARE (LOCATION) 0004. STH 100 & W. WATERTOWN PLANK ROAD	LUMP	LUMP			.
3340	659.0802 PLAQUES SEQUENCE IDENTIFICATION	225.000 EACH		.		.
3350	661.0200 TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS (LOCATION) 0002. IH 94 WB RAMPS & STH 100 LEFT IN PLACE	LUMP	LUMP			.
3360	661.0200 TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS (LOCATION) 0003. USH 18 & STH 100	LUMP	LUMP			.

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3370	661.0200 TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS (LOCATION) 0004. STH 100 & W. WISCONSIN AVENUE	LUMP	LUMP			.
3380	661.0200 TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS (LOCATION) 0005. STH 100 & W. POTTER ROAD / W. RESEARCH DRIVE	LUMP	LUMP			.
3390	661.0200 TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS (LOCATION) 0006. STH 100 & W. WATERTOWN PLANK ROAD	LUMP	LUMP			.
3400	661.0200 TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS (LOCATION) 0007. WATERTOWN PLANK ROAD & INNOVATION DRIVE LEFT IN PLACE	LUMP	LUMP			.
3410	661.0200 TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS (LOCATION) 0008. USH 45 SB ON RAMP & W. NORTH AVENUE	LUMP	LUMP			.
3420	661.0300 GENERATORS	12.000 DAY	.			.
3430	670.0100 FIELD SYSTEM INTEGRATOR 0001. FTMS	LUMP	LUMP			.
3440	670.0100 FIELD SYSTEM INTEGRATOR 0002. TRAFFIC SIGNALS	LUMP	LUMP			.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
3450	670.0200 ITS DOCUMENTATION 0001. FTMS	LUMP	LUMP			.
3460	670.0200 ITS DOCUMENTATION 0002. TRAFFIC SIGNALS	LUMP	LUMP			.
3470	672.0230 BASE CAMERA POLE 30-FT	3.000 EACH	.			.
3480	673.0105 COMMUNICATION VAULT TYPE 1	14.000 EACH	.			.
3490	673.0225.S INSTALL POLE MOUNTED CABINET	3.000 EACH	.			.
3500	674.0300 REMOVE CABLE	11,752.000 LF	.			.
3510	675.0400.S INSTALL ETHERNET SWITCH	5.000 EACH	.			.
3520	676.9001.S REMOVING ADVANCE FLASHER ASSEMBLIES TYPE 1	4.000 EACH	.			.
3530	677.0100 INSTALL CAMERA POLE	3.000 EACH	.			.
3540	677.0200 INSTALL CAMERA ASSEMBLY	3.000 EACH	.			.
3550	677.0300.S INSTALL VIDEO ENCODER	4.000 EACH	.			.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
3560	677.9200.S REMOVING CCTV CAMERA	2.000 EACH		.		.
3570	678.0006 INSTALL FIBER OPTIC CABLE OUTDOOR PLANT 6-CT	670.000 LF		.		.
3580	678.0036 INSTALL FIBER OPTIC CABLE OUTDOOR PLANT 36-CT	820.000 LF		.		.
3590	678.0072 INSTALL FIBER OPTIC CABLE OUTDOOR PLANT 72-CT	6,417.000 LF		.		.
3600	678.0300 FIBER OPTIC SPLICE	262.000 EACH		.		.
3610	678.0400 FIBER OPTIC TERMINATION	42.000 EACH		.		.
3620	678.0500 COMMUNICATION SYSTEM TESTING 0001. FTMS	LUMP	LUMP			.
3630	678.0500 COMMUNICATION SYSTEM TESTING 0002. TRAFFIC SIGNALS	LUMP	LUMP			.
3640	690.0150 SAWING ASPHALT	3,846.000 LF		.		.
3650	690.0250 SAWING CONCRETE	36,348.000 LF		.		.
3660	ASP.1T0A ON-THE-JOB TRAINING APPRENTICE AT $5.00/HR	1,600.000 HRS	5.00000		8000.00	

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3670	ASP.1T0G ON-THE-JOB TRAINING GRADUATE AT $5.00/HR	6,000.000 HRS	5.00000		30000.00	
3680	SPV.0005 SPECIAL 0010. ROOT STOCK PROTECTION	0.250 ACRE	.		.	
3690	SPV.0035 SPECIAL 0010. RIPRAP MEDIUM SPECIAL	116.000 CY	.		.	
3700	SPV.0035 SPECIAL 4010. LIGHTWEIGHT FOAMED CONCRETE FILL GRADE 2	3,039.000 CY	.		.	
3710	SPV.0035 SPECIAL 8001. DETENTION BASIN CLAY LINING	12,317.000 CY	.		.	
3720	SPV.0035 SPECIAL 8002. BACKFILL SLURRY	26,336.000 CY	.		.	
3730	SPV.0035 SPECIAL 8003. CONCRETE SLOPE PAVING AT STORM SEWER OUTFALL	35.000 CY	.		.	
3740	SPV.0045 SPECIAL 0010. TEMPORARY CROSSWALK AND BUS STOP ACCESS	853.000 DAY	.		.	
3750	SPV.0060 SPECIAL 0001. REMOVING CONCRETE BOLLARD	3.000 EACH	.		.	
3760	SPV.0060 SPECIAL 0002. REMOVING SIGN FOUNDATION	16.000 EACH	.		.	
3770	SPV.0060 SPECIAL 0003. EXPOSING EXISTING UTILITY	150.000 EACH	.		.	

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3780	SPV.0060 SPECIAL 0004. LANDMARK REFERENCE MONUMENT SPECIAL	11.000 EACH		.		.
3790	SPV.0060 SPECIAL 0005. HYDRO EXCAVATION	25.000 EACH		.		.
3800	SPV.0060 SPECIAL 0010. PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC ARROWS TYPE 1	2.000 EACH		.		.
3810	SPV.0060 SPECIAL 0011. PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC ARROWS TYPE 2	101.000 EACH		.		.
3820	SPV.0060 SPECIAL 0012. PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC ARROWS TYPE 3	3.000 EACH		.		.
3830	SPV.0060 SPECIAL 0013. PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC ARROWS TYPE 6	1.000 EACH		.		.
3840	SPV.0060 SPECIAL 0014. PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC ARROWS TYPE 7	4.000 EACH		.		.
3850	SPV.0060 SPECIAL 0015. PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC WORDS	95.000 EACH		.		.
3860	SPV.0060 SPECIAL 0016. TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER BASES LEFT IN PLACE	30.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
3870	SPV.0060 SPECIAL 0017. TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER POSTS LEFT IN PLACE	30.000 EACH		.		.
3880	SPV.0060 SPECIAL 0018. TRAFFIC CONTROL BARRICADES TYPE III LEFT IN PLACE	16.000 EACH		.		.
3890	SPV.0060 SPECIAL 0019. TRAFFIC CONTROL WARNING LIGHTS TYPE A LEFT IN PLACE	32.000 EACH		.		.
3900	SPV.0060 SPECIAL 0020. TRAFFIC CONTROL SIGNS LEFT IN PLACE	8.000 EACH		.		.
3910	SPV.0060 SPECIAL 0110. SHALLOW MARSH ROOT STOCK	325.000 EACH		.		.
3920	SPV.0060 SPECIAL 1010. LAMP DISPOSAL HIGH INTENSITY DISCHARGE	155.000 EACH		.		.
3930	SPV.0060 SPECIAL 1020. SALVAGING LIGHT POLE LUMINAIRES AND ARMS	13.000 EACH		.		.
3940	SPV.0060 SPECIAL 1023. SALVAGING LUMINAIRES - WAUWATOSA	121.000 EACH		.		.
3950	SPV.0060 SPECIAL 1031. REMOVING ALUMINUM LIGHT POLES AND ARMS	54.000 EACH		.		.
3960	SPV.0060 SPECIAL 1032. REMOVING CONCRETE LIGHT POLES AND ARMS	64.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SPV.0060 SPECIAL 1035.					
3970	WOOD POLE LIGHTING 60-FOOT	41.000 EACH		.		.
	SPV.0060 SPECIAL 1036.					
3980	WOOD POLE 60-FT	24.000 EACH		.		.
	SPV.0060 SPECIAL 1040.					
3990	REMOVING 60-FOOT WOOD POLES AND FLOODLIGHTS	44.000 EACH		.		.
	SPV.0060 SPECIAL 1041.					
4000	REMOVING 60-FOOT WOOD POLES	22.000 EACH		.		.
	SPV.0060 SPECIAL 1060.					
4010	LED LUMINAIRE	161.000 EACH		.		.
	SPV.0060 SPECIAL 1070.					
4020	LUMINAIRES FLOODLIGHT 1000W HPS	28.000 EACH		.		.
	SPV.0060 SPECIAL 1071.					
4030	LUMINAIRES FLOODLIGHT 400W HPS	29.000 EACH		.		.
	SPV.0060 SPECIAL 1090.					
4040	SALVAGE DISTRIBUTION CENTERS	3.000 EACH		.		.
	SPV.0060 SPECIAL 1110.					
4050	DISTRIBUTION CENTER LIGHTING	2.000 EACH		.		.
	SPV.0060 SPECIAL 1152.					
4060	ELECTRICAL SERVICE METER BREAKER PEDESTAL-RPT	1.000 EACH		.		.

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4070	SPV.0060 SPECIAL 1153. REMOVE ELECTRIC SERVICE METER BREAKER PEDESTAL LIGHTING	1.000 EACH		.		.
4080	SPV.0060 SPECIAL 2001. INSTALL WIRELESS MODEM	3.000 EACH		.		.
4090	SPV.0060 SPECIAL 2002. REMOVING ELECTRICAL SERVICE METER BREAKER PEDESTAL	1.000 EACH		.		.
4100	SPV.0060 SPECIAL 2003. INSTALL 900 MHZ RADIO	2.000 EACH		.		.
4110	SPV.0060 SPECIAL 2004. GROUND ROD	5.000 EACH		.		.
4120	SPV.0060 SPECIAL 2005. INSTALL DYNAMIC MESSAGE SIGN	2.000 EACH		.		.
4130	SPV.0060 SPECIAL 2006. REMOVING CONTROLLER CABINET	2.000 EACH		.		.
4140	SPV.0060 SPECIAL 2007. REMOVING CONTROLLER CABINET BASE	1.000 EACH		.		.
4150	SPV.0060 SPECIAL 2008. REMOVING CAMERA POLE	2.000 EACH		.		.
4160	SPV.0060 SPECIAL 2009. REMOVING COMMUNICATIONS VAULT	15.000 EACH		.		.

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4170	SPV.0060 SPECIAL 2010. INSTALL 5.8 GHZ ETHERNET BRIDGE	1.000 EACH		.		.
4180	SPV.0060 SPECIAL 3010. CONCRETE BASES TYPE 1 SPREAD FOOTING	2.000 EACH		.		.
4190	SPV.0060 SPECIAL 3011. CONCRETE BASES TYPE 2 SPREAD FOOTING	1.000 EACH		.		.
4200	SPV.0060 SPECIAL 3012. BACKPLATES WITH REFLECTIVE BORDER 3 SECTION 12-INCH	38.000 EACH		.		.
4210	SPV.0060 SPECIAL 3015. INTERSECTION LUMINAIRE LED	37.000 EACH		.		.
4220	SPV.0060 SPECIAL 3016. POLES TYPE 10	1.000 EACH		.		.
4230	SPV.0060 SPECIAL 3017. POLES TYPE 12	2.000 EACH		.		.
4240	SPV.0060 SPECIAL 3018. CONC BASES TYPE 10, CONTR SUPPLIED ANCHOR BOLTS & ANCHOR ROD TEMPLATE	1.000 EACH		.		.
4250	SPV.0060 SPECIAL 3019. CONC BASES TYPE 13, CONTR SUPPLIED ANCHOR BOLTS & ANCHOR ROD TEMPLATE	2.000 EACH		.		.

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4260	SPV.0060 SPECIAL 4010. ANCHOR ASSEMBLIES LIGHT POLE STRUCTURES	7.000 EACH		.		.
4270	SPV.0060 SPECIAL 4020. MICROPILE VERIFICATION LOAD TEST	2.000 EACH		.		.
4280	SPV.0060 SPECIAL 4030. MICROPILE PROOF LOAD TEST	10.000 EACH		.		.
4290	SPV.0060 SPECIAL 4040. DEADMAN TIEBACKS	98.000 EACH		.		.
4300	SPV.0060 SPECIAL 4050. PRECAST CONCRETE DEADMAN BLOCK	56.000 EACH		.		.
4310	SPV.0060 SPECIAL 4060. 24-INCH PRESTRESSED INVERTED T-BEAM	40.000 EACH		.		.
4320	SPV.0060 SPECIAL 4070. TEMPORARY ACCESS GATES	2.000 EACH		.		.
4330	SPV.0060 SPECIAL 5000. RESILIENT WEDGE GATE VALVE, 8-INCH	4.000 EACH		.		.
4340	SPV.0060 SPECIAL 5001. RESILIENT WEDGE GATE VALVE, 6-INCH	6.000 EACH		.		.
4350	SPV.0060 SPECIAL 5002. HYDRANT ASSEMBLY	6.000 EACH		.		.
4360	SPV.0060 SPECIAL 5003. HYDRANT ASSEMBLY RELOCATION	25.000 EACH		.		.

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4370	SPV.0060 SPECIAL 5004. COPPER WATER SERVICE 1-INCH	1.000 EACH		.		.
4380	SPV.0060 SPECIAL 5005. DUCTILE IRON (DI) CLASS 55 WATER SERVICE 6-INCH	2.000 EACH		.		.
4390	SPV.0060 SPECIAL 5006. RECONSTRUCT MMSD MANHOLE	3.000 EACH		.		.
4400	SPV.0060 SPECIAL 5007. SANITARY MANHOLE TYPE A	9.000 EACH		.		.
4410	SPV.0060 SPECIAL 5008. SANITARY MANHOLE TYPE D	1.000 EACH		.		.
4420	SPV.0060 SPECIAL 5009. RECONNECT SANITARY LATERAL 6-INCH	2.000 EACH		.		.
4430	SPV.0060 SPECIAL 5010. RECONNECT SANITARY LATERAL 4-INCH	5.000 EACH		.		.
4440	SPV.0060 SPECIAL 5011. ADJUSTING SANITARY MANHOLE	8.000 EACH		.		.
4450	SPV.0060 SPECIAL 5012. ABANDON SANITARY MANHOLE	5.000 EACH		.		.
4460	SPV.0060 SPECIAL 5013. RECONSTRUCT SANITARY MANHOLE	3.000 EACH		.		.
4470	SPV.0060 SPECIAL 7001. ASTER, PROFESSOR KIPPENBURG CONT 6-INCH	103.000 EACH		.		.

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4480	SPV.0060 SPECIAL 7002. DAYLILY, STELLA DE ORO, CONT 6- INCH	144.000 EACH		.		.
4490	SPV.0060 SPECIAL 7003. CONEFLOWER, PURPLE, CONT 2.5-INCH	7.000 EACH		.		.
4500	SPV.0060 SPECIAL 7004. GRASS, PRAIRIE DROPSEED, CONT 6-INCH	84.000 EACH		.		.
4510	SPV.0060 SPECIAL 7005. GRASS, LITTLE BLUESTEM, CONT 6-INCH	10.000 EACH		.		.
4520	SPV.0060 SPECIAL 7006. GRASS, ADAGIO DWARF MAIDEN CONT 6-INCH	10.000 EACH		.		.
4530	SPV.0060 SPECIAL 7007. GRASS, KARL FOERSTER REED, CONT 6-INCH	30.000 EACH		.		.
4540	SPV.0060 SPECIAL 7008. PHLOX, CREEPING, CONT 6-INCH	16.000 EACH		.		.
4550	SPV.0060 SPECIAL 7009. SUSAN, BLACK EYED, CONT 2.5-INCH	3.000 EACH		.		.
4560	SPV.0060 SPECIAL 7010. YARROW, PAPRIKA, CONT 6-INCH	18.000 EACH		.		.
4570	SPV.0060 SPECIAL 7011. CROSSROAD NAME SIGNS SPECIAL SIGN SUPPORTS	26.000 EACH		.		.
4580	SPV.0060 SPECIAL 7012. SIGN STRUCTURE WAYFINDING	5.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
4590	SPV.0060 SPECIAL 7013. CONC FOUNDATION, ADVANCE CROSSROAD NAME SIGNS SPECIAL SIGN SUPPORT	26.000 EACH		.		.
4600	SPV.0060 SPECIAL 7014. CONCRETE FOUNDATION, WAYFINDING	5.000 EACH		.		.
4610	SPV.0060 SPECIAL 8002. HOTEL POND OUTLET STORM SEWER STRUCTURE	1.000 EACH		.		.
4620	SPV.0060 SPECIAL 8003. MAYFAIR POND OUTLET STORM SEWER STRUCTURE	1.000 EACH		.		.
4630	SPV.0060 SPECIAL 8004. INLET COVERS TYPE 57	29.000 EACH		.		.
4640	SPV.0060 SPECIAL 8006. INLET COVERS TYPE R SPECIAL	56.000 EACH		.		.
4650	SPV.0060 SPECIAL 8007. RECONNECT STORM SEWER LATERALS	50.000 EACH		.		.
4660	SPV.0060 SPECIAL 8012. MANHOLES 9-FT SPECIAL	8.000 EACH		.		.
4670	SPV.0060 SPECIAL 8013. MANHOLES 10-FT SPECIAL	4.000 EACH		.		.
4680	SPV.0060 SPECIAL 8015. PIPE CONNECTION TO EXISTING STRUCTURE	1.000 EACH		.		.
4690	SPV.0060 SPECIAL 8017. SEDIMENTATION BASIN	4.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
4700	SPV.0060 SPECIAL 8024. CHECK VALVE 72-INCH	1.000 EACH		.		.
4710	SPV.0060 SPECIAL 8030. STORM SEWER STRUCTURE S423	1.000 EACH		.		.
4720	SPV.0060 SPECIAL 8031. STORM SEWER STRUCTURE S429	1.000 EACH		.		.
4730	SPV.0060 SPECIAL 8032. STORM SEWER STRUCTURE S447	1.000 EACH		.		.
4740	SPV.0060 SPECIAL 8033. STORM SEWER STRUCTURE S450	1.000 EACH		.		.
4750	SPV.0060 SPECIAL 8034. STORM SEWER STRUCTURE S454	1.000 EACH		.		.
4760	SPV.0060 SPECIAL 8035. STORM SEWER STRUCTURE S466	1.000 EACH		.		.
4770	SPV.0060 SPECIAL 8036. STORM SEWER STRUCTURE S467	1.000 EACH		.		.
4780	SPV.0060 SPECIAL 8037. STORM SEWER STRUCTURE S471	1.000 EACH		.		.
4790	SPV.0060 SPECIAL 8039. STORM SEWER STRUCTURE S478	1.000 EACH		.		.
4800	SPV.0060 SPECIAL 8040. STORM SEWER STRUCTURE S487	1.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
4810	SPV.0060 SPECIAL 8041. STORM SEWER STRUCTURE S489	1.000 EACH		.		.
4820	SPV.0060 SPECIAL 8042. STORM SEWER STRUCTURE S491	1.000 EACH		.		.
4830	SPV.0060 SPECIAL 8044. STORM SEWER STRUCTURE S739	1.000 EACH		.		.
4840	SPV.0060 SPECIAL 8045. STORM SEWER STRUCTURE S746	1.000 EACH		.		.
4850	SPV.0060 SPECIAL 8046. STORM SEWER STRUCTURE S747	1.000 EACH		.		.
4860	SPV.0060 SPECIAL 8047. STORM SEWER STRUCTURE S748	1.000 EACH		.		.
4870	SPV.0060 SPECIAL 8048. STORM SEWER STRUCTURE S749	1.000 EACH		.		.
4880	SPV.0060 SPECIAL 8049. STORM SEWER STRUCTURE S750	1.000 EACH		.		.
4890	SPV.0060 SPECIAL 8051. STORM SEWER STRUCTURE S820	1.000 EACH		.		.
4900	SPV.0060 SPECIAL 8061. REMOVE AND CAP EXISTING DRAINAGE STRUCTURE	3.000 EACH		.		.
4910	SPV.0090 SPECIAL 0001. REMOVING RETAINING WALL	957.000 LF		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
4920	SPV.0090 SPECIAL 0002. PIPE UNDERDRAIN EXPLORATION	600.000 LF		.		.
4930	SPV.0090 SPECIAL 0003. STORM SEWER LATERAL EXPLORATION	600.000 LF		.		.
4940	SPV.0090 SPECIAL 0009. PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC YIELD LINE 18-INCH	76.000 LF		.		.
4950	SPV.0090 SPECIAL 0010. PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC STOP LINE 18-INCH	1,372.000 LF		.		.
4960	SPV.0090 SPECIAL 0011. PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC CROSSWALK 6-INCH	5,799.000 LF		.		.
4970	SPV.0090 SPECIAL 0012. LOW PROFILE CONCRETE BARRIER	1,845.000 LF		.		.
4980	SPV.0090 SPECIAL 0013. LOW PROFILE CONCRETE BARRIER END SECTION	451.000 LF		.		.
4990	SPV.0090 SPECIAL 0014. VERTICAL FACE PARAPET SPECIAL	250.000 LF		.		.
5000	SPV.0090 SPECIAL 0210. WALL RAILING	516.000 LF		.		.
5010	SPV.0090 SPECIAL 1005. CABLE AERIAL ALUMINUM 2 AWG QUADRUPLEX	2,871.000 LF		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
5020	SPV.0090 SPECIAL 1006. CABLE AERIAL ALUMINUM 4 AWG QUADRUPLEX	3,635.000 LF		.		.
5030	SPV.0090 SPECIAL 1007. CABLE AERIAL ALUMINUM 6 AWG QUADRUPLEX	8,459.000 LF		.		.
5040	SPV.0090 SPECIAL 2001. CONDUIT HDPE 3 DUCT 2-INCH	7,812.000 LF		.		.
5050	SPV.0090 SPECIAL 4010. FENCE DECORATIVE	1,586.000 LF		.		.
5060	SPV.0090 SPECIAL 4020. PILING SLEEVES MICROPILES	1,205.000 LF		.		.
5070	SPV.0090 SPECIAL 4030. 10.75-INCH MICROPILE FOUNDATION	11,722.000 LF		.		.
5080	SPV.0090 SPECIAL 4031. 11.75-INCH MICROPILE FOUNDATION	1,328.000 LF		.		.
5090	SPV.0090 SPECIAL 4050. INJECTED POLYURETHANE CONCRETE CRACK SEALING	1,212.000 LF		.		.
5100	SPV.0090 SPECIAL 4070. JOINT REPAIR SPECIAL	341.000 LF		.		.
5110	SPV.0090 SPECIAL 5000. DUCTILE IRON (DI) CLASS 55 WATER MAIN 16-INCH	45.000 LF		.		.
5120	SPV.0090 SPECIAL 5001. DUCTILE IRON (DI) CLASS 55 WATER MAIN 8-INCH	2,088.000 LF		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
5130	SPV.0090 SPECIAL 5002. SANITARY SEWER RELAY 8-INCH	1,604.000 LF		.		.
5140	SPV.0090 SPECIAL 5003. ABANDONING EXISTING 8-INCH AND 10-INCH SANITARY SEWER	735.000 LF		.		.
5150	SPV.0090 SPECIAL 8001. PIPE UNDERDRAIN 6-INCH SPECIAL	5,073.000 LF		.		.
5160	SPV.0090 SPECIAL 8002. SS PIPE REINF CONC HORIZONTAL ELLIPTICAL CLASS HE-III 77X121-INCH	229.000 LF		.		.
5170	SPV.0105 SPECIAL 0001. REMOVING GEODETIC SURVEY MONUMENT 2K17	LUMP	LUMP			.
5180	SPV.0105 SPECIAL 0002. REMOVING FORMER HOTEL BUIILDING STRUCTURE	LUMP	LUMP			.
5190	SPV.0105 SPECIAL 0003. ABANDON STEAM TUNNEL	LUMP	LUMP			.
5200	SPV.0105 SPECIAL 0010. SURVEY PROJECT 1060-33-70	LUMP	LUMP			.
5210	SPV.0105 SPECIAL 0011. PAVEMENT CLEANUP PROJECT 1060-33-70	LUMP	LUMP			.
5220	SPV.0105 SPECIAL 0012. CONCRETE PAVEMENT JOINT LAYOUT PROJECT 1060-33-70	LUMP	LUMP			.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
5230	SPV.0105 SPECIAL 0210. 60-INCH HEADWALL AND GRATE	LUMP	LUMP			.
5240	SPV.0105 SPECIAL 1005. MAINTENANCE OF LIGHTING SYSTEM	LUMP	LUMP			.
5250	SPV.0105 SPECIAL 2000. TEMPORARY TRAFFIC CAMERA SYSTEM (BLUEMOUND ROAD)	LUMP	LUMP			.
5260	SPV.0105 SPECIAL 2001. TEMPORARY TRAFFIC CAMERA SYSTEM (WATERTOWN PLANK ROAD)	LUMP	LUMP			.
5270	SPV.0105 SPECIAL 2002. WORK ZONE TRAVEL INFORMATION SYSTEM	LUMP	LUMP			.
5280	SPV.0105 SPECIAL 3018. REMOVE TRAFFIC SIGNALS IH 94 WB RAMPS & STH 100	LUMP	LUMP			.
5290	SPV.0105 SPECIAL 3019. REMOVE TRAFFIC SIGNALS USH 18 & STH 100	LUMP	LUMP			.
5300	SPV.0105 SPECIAL 3020. REMOVE TRAFFIC SIGNALS STH 100 & W. POTTER ROAD / W. RESEARCH DRIVE	LUMP	LUMP			.
5310	SPV.0105 SPECIAL 3021. REMOVE TRAFFIC SIGNALS STH 100 & W. WATERTOWN PLANK ROAD	LUMP	LUMP			.
5320	SPV.0105 SPECIAL 3022. REMOVE TRAFFIC SIGNALS WATERTOWN PLANK ROAD & INNOVATION DRIVE	LUMP	LUMP			.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
5330	SPV.0105 SPECIAL 3024. REMOVE LOOP DETECTOR WIRE AND LEAD-IN CABLE IH 94 WB RAMPS & STH 100	LUMP	LUMP			.
5340	SPV.0105 SPECIAL 3025. REMOVE LOOP DETECTOR WIRE AND LEAD-IN CABLE USH 18 & STH 100	LUMP	LUMP			.
5350	SPV.0105 SPECIAL 3026. REMOVE LOOP DET WIRE & LEAD-IN CAB STH 100 & W. POTTER RD/W. RESEARCH DR	LUMP	LUMP			.
5360	SPV.0105 SPECIAL 3027. REMOVE LOOP DETECTOR WIRE & LEAD- IN CABLE STH 100 & W. WATERTOWN PLANK RD	LUMP	LUMP			.
5370	SPV.0105 SPECIAL 3029. TRANSPORTING SIGNAL AND LIGHTING MATERIALS USH 18 & STH 100	LUMP	LUMP			.
5380	SPV.0105 SPECIAL 3030. TRANSPORTING SIGNAL AND LIGHTING MATERIALS STH 100 & W. WISCONSIN AVE	LUMP	LUMP			.
5390	SPV.0105 SPECIAL 3031. TRANSPORTING SIGNAL & LIGHTING MAT STH 100 & W. POTTER RD / W. RESEARCH DR	LUMP	LUMP			.
5400	SPV.0105 SPECIAL 3032. TRANSPORTING SIGNAL & LIGHTING MATERIAL STH 100 & W. WATERTOWN PLANK RD	LUMP	LUMP			.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
5410	SPV.0105 SPECIAL 3033. INSTALL VENDOR SUPPLIED TRAFFIC SIGNAL CABINET USH 18 & STH 100	LUMP	LUMP			.
5420	SPV.0105 SPECIAL 3034. INSTALL VENDOR SUPPLIED TRAFFIC SIGNAL CABINET STH 100 & W. WISCONSIN AV	LUMP	LUMP			.
5430	SPV.0105 SPECIAL 3035. INSTALL VENDOR SUPPLIED TRAF SIG CABINET STH 100 & W POTTER RD/W RESEARCH	LUMP	LUMP			.
5440	SPV.0105 SPECIAL 3036. INSTALL VENDOR SUPPLIED TRAF SIG CABINET STH 100 & W. WATERTOWN PLANK RD	LUMP	LUMP			.
5450	SPV.0105 SPECIAL 3037. TRANSP & INST STATE FURN AUTOSCOPE VID DET SYS USH 18 & STH 100	LUMP	LUMP			.
5460	SPV.0105 SPECIAL 3038. TRANSP & INST STATE FURN AUTOSCOPE VID DET SYS STH 100 & W WISC AVE	LUMP	LUMP			.
5470	SPV.0105 SPECIAL 3039. TRANSP & INST STATE FURN AUTOSCOPE VID DET SYS STH 100 & W POTTER RD	LUMP	LUMP			.
5480	SPV.0105 SPECIAL 3040. TRANSP & INST STATE FURN AUTOSCOPE VID DET SYS STH 100 & W WATERTOWN PLANK	LUMP	LUMP			.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
5490	SPV.0105 SPECIAL 3041. EVP DETECTOR HEAD INSTALLATION USH 18 & STH 100	LUMP	LUMP			.
5500	SPV.0105 SPECIAL 3042. EVP DETECTOR HEAD INSTALLATION STH 100 & W. WISCONSIN AVENUE	LUMP	LUMP			.
5510	SPV.0105 SPECIAL 3043. EVP DETECTOR HEAD INSTALLATION STH 100 & W. POTTER RD / W. RESEARCH DR	LUMP	LUMP			.
5520	SPV.0105 SPECIAL 3044. EVP DETECTOR HEAD INSTALLATION STH 100 & W. WATERTOWN PLANK ROAD	LUMP	LUMP			.
5530	SPV.0105 SPECIAL 3045. INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET USH 18 & STH 100	LUMP	LUMP			.
5540	SPV.0105 SPECIAL 3046. INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET STH 100 & W. WISCONSIN AVENUE	LUMP	LUMP			.
5550	SPV.0105 SPECIAL 3047. INSTALL FIBER OPTIC COM IN CABINET STH 100 & W. POTTER RD / W. RESEARCH DR	LUMP	LUMP			.
5560	SPV.0105 SPECIAL 3048. INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET STH 100 & W. WATERTOWN PLANK	LUMP	LUMP			.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
5570	SPV.0105 SPECIAL 3050. TEMPORARY EVP SYSTEM IH 94 WB RAMPS & STH 100 LEFT IN PLACE	LUMP	LUMP			.
5580	SPV.0105 SPECIAL 3051. TEMPORARY EVP SYSTEM USH 18 & STH 100	LUMP	LUMP			.
5590	SPV.0105 SPECIAL 3052. TEMPORARY EVP SYSTEM STH 100 & W. WISCONSIN AVENUE	LUMP	LUMP			.
5600	SPV.0105 SPECIAL 3053. TEMPORARY EVP SYSTEM STH 100 & W. POTTER ROAD / W. RESEARCH DRIVE	LUMP	LUMP			.
5610	SPV.0105 SPECIAL 3054. TEMPORARY EVP SYSTEM STH 100 & W. WATERTOWN PLANK ROAD	LUMP	LUMP			.
5620	SPV.0105 SPECIAL 3055. TEMPORARY EVP SYSTEM WATERTOWN PLANK RD & INNOVATION DR LEFT IN PLACE	LUMP	LUMP			.
5630	SPV.0105 SPECIAL 3056. TEMPORARY EVP SYSTEM USH 45 SB ON RAMP & W. NORTH AVENUE	LUMP	LUMP			.
5640	SPV.0105 SPECIAL 3057. FIRE DEPARTMENT FLASHER SYSTEM	LUMP	LUMP			.
5650	SPV.0105 SPECIAL 8002. DEWATERING FOR DETENTION BASIN CONSTRUCTION	LUMP	LUMP			.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
5660	SPV.0165 SPECIAL 0010. CONCRETE SIDEWALK 5-INCH SPECIAL	47,520.000 SF		.		.
5670	SPV.0165 SPECIAL 0011. FIXED MESSAGE SIGN SPECIAL	318.100 SF		.		.
5680	SPV.0165 SPECIAL 0012. FIXED MESSAGE SIGN LEFT IN PLACE	135.000 SF		.		.
5690	SPV.0165 SPECIAL 0210. RETAINING WALL SOLDIER PILE	5,185.000 SF		.		.
5700	SPV.0165 SPECIAL 0211. RETAINING WALL ADDITION	65.000 SF		.		.
5710	SPV.0165 SPECIAL 0212. ARCHITECTURAL SURFACE TREATMENT STONE	6,960.000 SF		.		.
5720	SPV.0165 SPECIAL 0213. STAINING CONCRETE STONE	6,960.000 SF		.		.
5730	SPV.0165 SPECIAL 0214. CONCRETE STAINING SPECIAL	7,454.000 SF		.		.
5740	SPV.0165 SPECIAL 4010. WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD	19,890.000 SF		.		.
5750	SPV.0165 SPECIAL 4030. COVERED TUNNEL WATERPROOFING	56,347.000 SF		.		.

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5760	SPV.0165 SPECIAL 4040. EXPOSED TUNNEL WATERPROOFING	12,640.000 SF		.		.
5770	SPV.0165 SPECIAL 4050. REMOVE EXISTING GRAFFITTI	8,508.000 SF		.		.
5780	SPV.0165 SPECIAL 4060. TEMPORARY SHORING RAILROAD	3,094.000 SF		.		.
5790	SPV.0165 SPECIAL 4070. REMOVING LOOSE CONCRETE	164.000 SF		.		.
5800	SPV.0165 SPECIAL 4080. CONCRETE SURFACE REPAIR SPECIAL	150.000 SF		.		.
5810	SPV.0165 SPECIAL 4090. DEEP CONCRETE REPAIR	50.000 SF		.		.
5820	SPV.0165 SPECIAL 7001. TURF PAVERS	11,560.000 SF		.		.
5830	SPV.0180 SPECIAL 0010. CONCRETE PAVEMENT 8-INCH SPECIAL	4,720.000 SY		.		.
5840	SPV.0180 SPECIAL 0011. GEOTEXTILE FABRIC TYPE FF	204.000 SY		.		.
5850	SPV.0195 SPECIAL 0010. EXCAVATION HAULING AND DISPOSAL OF VOC-CONTAMINATED SOIL	500.000 TON		.		.

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5860	SPV.0195 SPECIAL 4010. BASE AGGREGATE OPEN GRADED SPECIAL	13,761.000 TON		.		.
	SECTION 0001 TOTAL					.
	TOTAL BID					.

PLEASE ATTACH SCHEDULE OF ITEMS HERE