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
Waukesha	2718-12-70	WISC 2014 437	S East Avenue Sunset Drive to Estberg Avenue	Local Street
Waukesha	2718-12-71		S East Avenue Sunset Drive to Estberg Avenue (Water Main)	Local Street
Waukesha	2718-12-72		S East Avenue Sunset Drive to Estberg Avenue (Sanitary Laterals)	Local Street

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, $ 75,000.00 Payable to: Wisconsin Department of Transportation	Attach Proposal Guaranty on back of this PAGE.
Bid Submittal Due Date: December 9, 2014 Time (Local Time): 9:00 AM	Firm Name, Address, City, State, Zip Code **SAMPLE** **NOT FOR BIDDING PURPOSES**
Contract Completion Time September 4, 2015	
Assigned Disadvantaged Business Enterprise Goal 12 %	This contract is exempt from 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 Pavement removal, grading, base aggregate dense, HMA pavement, concrete curb and gutter, concrete sidewalk, storm sewer, water main, sanitary laterals, permanent signing, pavement marking, traffic signals, lighting, and traffic control.	
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)

March 2010

LIST OF SUBCONTRACTORS

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

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

Name of Subcontractor	Class of Work	Estimated Value

DECEMBER 2000

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

Instructions for Certification

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Special Provisions

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SPECIAL PROVISIONS

1. General.

Perform the work under this construction contract for Project 2718-12-70, 2718-12-71, 2718-12-72 S. East Avenue, Sunset Drive to Estberg Avenue, Waukesha County, Wisconsin as the plans show and execute the work as specified in the State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, 2015 Edition, as published by the department, Specifications for Water Main and Service Lateral Materials and the Installation of Water Main and Appurtenances for Waukesha Water Utility of the City of Waukesha dated February 28, 2011, the regulations of the Wisconsin Department of Natural Resources (WDNR), the Standard Specifications for Sewer and Water Construction in Wisconsin – Sixth Edition, AWWA Specifications, and these special provisions.

If there is a discrepancy or conflict between the referenced specification and the standard specifications regarding contract administration, part 1 of the standard specifications governs.

If all or a portion of the plans and special provisions are developed in the SI metric system and the schedule of prices is developed in the US standard measure system, the department will pay for the work as bid in the US standard system.
100-005 (20130615)

2. Scope of Work.

The work under this contract shall consist of pavement removal, grading, base aggregate dense, HMA pavement, concrete curb and gutter, concrete sidewalk, storm sewer, pavement marking, permanent signing, traffic signals, lighting, water main and all incidental items necessary to complete the work as shown on the plans and included in the proposal and contract.
104-005 (20090901)

3. Prosecution and Progress.

A General
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.

Included in this "Prosecution and Progress" article are intermediate completion dates. These dates indicate that work efforts will possibly require multiple or concurrent controlling operations to occur at the same time. This information is included to assist the contractor and its subcontractors; do not interpret this information as a demonstration of specified means and methods or work periods other than intermediate completion dates.

There may be multiple mobilizations for such items as: traffic control, base aggregate dense, concrete curb and gutter, asphalt paving, signing items, pavement marking, topsoil, sodding, drainage items and other incidental items. No additional payment will be made by the department for said mobilizations.

Prior to beginning operations under this contract, submit in writing the proposed schedule of operations to the engineer for approval.

B Contractor Coordination

The prime contractor shall have a superintendent or designated representative on the job site during all controlling work operations, including periods limited to only subcontractor work operations, to serve as a primary contact person and to coordinate all work operations.

Hold prosecution and progress meetings once a week. The contractor's superintendent or designated representative and subcontractor's representatives for ongoing subcontract work or subcontractor work expected to begin within the next two weeks shall attend and provide a written schedule of the next week(s)' operations. The written schedule shall include begin and end dates of specific prime and subcontractor work operations. City of Waukesha representatives shall be invited to attend the prosecution and progress meetings. Agenda items at the meeting will include review of the contractor's schedule and subcontractors' schedule, evaluation of progress and pay items, and making revisions if necessary. Plans and specifications for upcoming work will be reviewed to prevent potential problems or conflicts between contractors.

Based on the progress meeting, if the engineer requests a new revised schedule, submit it within seven calendar days.

C Work Restrictions

Comply with all local ordinances which apply to work operations, including those pertaining to work during night-time hours. Furnish any and all ordinance variances issued by the municipality or required permits to the engineer in writing three working days before performing such work. Night-time work will not be allowed without written approval from the engineer and the City of Waukesha Department of Public Works at least three working days in advance of the work during night-time hours.

D Interim Completion of Work

Complete the construction operations necessary to reopen all lanes, including the upper asphalt layer, pavement marking, traffic signals and lighting, of the S. East Avenue (Station 522+50 to Station 527+00) and Sunset Drive (Station 696+43 to Station 703+10) intersection to traffic prior to 12:01 AM July 3, 2015.

If the contractor fails to complete the construction operations necessary to reopen all lanes, including the upper asphalt layer, pavement marking, traffic signals and lighting, of the S. East Avenue (Station 522+50 to Station 527+00) and Sunset Drive (Station 696+43 to Station 703+10) intersection to traffic prior to 12:01 AM July 3, 2015, the department will assess the contractor $3,380 in interim liquidated damages for each calendar day that any lane of the roadway remains closed after 12:01 AM July 3, 2015. An entire calendar day will be charged for any period of time within a calendar day that any lane of the road remains closed beyond 12:01 AM.

If contract time expires prior to completing all work specified in the contract, additional liquidated damages will be affixed in accordance to standard spec 108.11.

E Construction Staging

Prior to construction of southbound lanes on S. East Avenue, construct the east side sanitary laterals between Sunset Drive and Roberta Avenue. Use asphaltic surface temporary for patching any roadway surface removed.

S. East Avenue: Station 527+00 to Station 550+50

Stage 1

- Construct southbound lane, including binder asphalt layers, storm sewer main and sanitary laterals on S. East Avenue.

Stage 2

- Construct northbound lane, including binder asphalt layers, pavement marking and lighting, and water main on S. East Avenue.
- Placing the upper asphalt layer, including pavement marking, for both sides of the roadway shall be the final construction operation.

Sunset Drive Station 695+61 to Station 707+78 and S. East Avenue Station 522+50 to Station 527+00

Stage 1A

- Install temporary traffic signals at the S. East Avenue/Sunset Drive intersection.
- Construct temporary paved medians on Sunset Drive.

Stage 1B

- Construct storm sewer in the east and west terraces of S. East Avenue south of Sunset Drive from Station 522+50 to Station 527+00 LT/RT.
- Construct storm sewer crossings on Sunset Drive and S. East Avenue.
- Construct water main on Sunset Drive.

Stage 1C

- Construct westbound lanes on Sunset Drive, including any remaining storm sewer and water main.
- Construct southbound lane on S. East Avenue, including any remaining storm sewer and water main from Station 522+50 to Station 526+00 LT.

Stage 1D

- Construct eastbound lanes on Sunset Drive, including any remaining storm sewer and water main.
- Construct northbound lane on S. East Avenue, including any remaining storm sewer and water main from Station 522+50 to Station 526+50 RT.

Stage 2A

- Construct permanent medians on Sunset Drive.
- Complete permanent lighting at the intersection of S. East Avenue and Sunset Drive.

Stage 2B

- Maintain temporary signals for the duration of S. East Avenue Stage 2 construction from Station 527+00 to Station 550+00.
- Construct permanent signals after the completion of Stage 2 construction for S. East Avenue from Station 527+00 to Station 550+00.

F Traffic Control Deficiency Response Time Penalty

Supplement standard spec 643.3.2(8) 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 deficiency exists.

G Traffic Signals

Early coordination with the local power company may be required to ensure timely activation of the traffic signals. Be aware that recent history indicates that the utility company needs a minimum of 30 working days to get power to the new meter pedestal. This lead time needs to be considered when establishing the project's construction schedule.

4. Traffic.

A General

Accomplish the construction sequence, including the associated traffic control as detailed in the Construction Staging section of the plans, and as described in the Prosecution and Progress article, and in this Traffic article.

Unless detailed in the plans, do not begin or continue any work that closes traffic lanes outside the allowed time periods specified in this article.

Submit all traffic control change requests to the engineer at least 3 working days prior to an actual traffic control change. A request does not constitute approval.

Traffic control stage changes will only be allowed during off peak hours.

The following definitions shall apply to this contract:

Off-Peak Hours:

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

Peak Travel Periods:

- 6:00 AM to 9:00 AM Monday, Tuesday, Wednesday, Thursday, Friday
- 3:00 PM to 6:00 PM Monday, Tuesday, Wednesday, Thursday, Friday

Weekend Hours:

- 7:00 AM to 7:00PM Saturday, Sunday

Night-time Work Hours:

- 7:00 PM to 6:00 AM Sunday PM to Monday AM, Monday PM to Tuesday AM, Tuesday PM to Wednesday AM, Wednesday PM to Thursday AM, Thursday PM to Friday AM.

Employ flaggers, signs, barricades, and drums as may be necessary to safeguard and direct traffic at all locations where construction operations may interfere with or restrict the smooth flow of traffic.

Use drums and barricades to direct vehicular and pedestrian traffic in the work zone and to protect and delineate hazards such as open excavations, abrupt drop-offs, and exposed manholes, inlets, and hydrants.

Place roadway and sidewalk signing and roadway temporary pavement marking as detailed on the plans and in conformance to the Manual on Uniform Traffic Control Devices (MUTCD), latest edition. Traffic control shall be completely in place by the end of the working day of a traffic switch. Contractor forces shall cover or remove conflicting signs as necessary to avoid confusion.

Coordinate traffic requirements under this project with other adjacent department or local municipality projects. Contractor is responsible for implementing and coordinating with other contractors all traffic control shown in the plans. Modifications to the traffic control plan may be required by the engineer to be safe and consistent with adjacent work by others.

Do not store equipment, vehicles, or materials on adjacent streets beyond the project limits without specific approval of the engineer. Park and store equipment and material only at work sites approved by the engineer.

Maintain vehicle and pedestrian access at all times to buildings within the limits of construction.

B Traffic Control Description

S. East Avenue: Station 527+00 to Station 550+50
Stage 1

- S. East Avenue (north of Sunset Drive): 1 northbound lane to Roberta Avenue on the east side of S. East Avenue. Switch traffic to the southbound side temporarily for the installation of storm sewer inlet laterals, sanitary laterals, and for the water main crossings at Hoover Avenue and Coolidge Avenue.

Stage 2

- S. East Avenue (north of Sunset Drive): 1 northbound lane to Roberta Avenue on the west side of S. East Avenue.

Sunset Drive Station 695+61 to Station 707+78 and S. East Avenue Station 522+50 to Station 527+00
Stage 1A

- S. East Avenue (south of Sunset Drive): keep all lanes open to traffic.
- Sunset Drive: 1 through lane in each direction. Keep left-turn lanes open to traffic as shown in the Construction Staging section of the plans.

Stage 1B

- S. East Avenue (south of Sunset Drive): keep all lanes open to traffic in each direction at all times during weekday hours.
- S. East Avenue (south of Sunset Drive): keep a minimum of one lane open to traffic in each direction at all times during weekend hours.
- Sunset Drive (east and west of S. East Avenue): keep a minimum of one lane and one left-turn lane open in each direction to traffic at all times during weekday hours.

- Sunset Drive (east and west of S. East Avenue): keep a minimum of one lane open to traffic in each direction at all times during weekend hours.
- S. East Avenue/Sunset Drive Intersection: Temporary traffic signals shall be flashing red for an all-way stop during weekend hours for storm sewer and water main construction crossing the intersection.
- Sunset Drive: construct storm sewer crossings and water main on Sunset Drive. During the removal and reconstruction of the storm sewer and water main crossing Sunset Drive, eastbound/westbound Sunset Drive traffic will be reduced to one lane of traffic from either lane depending on which part of Sunset Drive storm sewer and water main is being removed or constructed. Removal or placement of storm sewer and water main will require periodic lane closures of through lanes and eastbound/westbound Sunset Drive left turn lanes. Flagging operations and reduction of traffic lanes to a one-way lane may be necessary to complete the storm sewer and water main construction in the S. East Avenue/Sunset Drive intersection and shall only be allowed during weekend hours as defined above.

Stage 1C

- S. East Avenue (south of Sunset Drive): 1 lane in each direction.
- Sunset Drive: 1 through lane and 1 left-turn lane in each direction on the eastbound side of Sunset Drive. Complete construction of intersection roadway from Station 700+00 to Station 700+20, 0’ to 35’ LT after Stage 2 is complete but before Stage 3 begins during off-peak or weekend hours only. Route northbound traffic around the temporary construction area in the southbound lane of S. East Avenue north of Sunset Drive. Flagging operations will be necessary for the intersection roadway construction.

Stage 1D

- S. East Avenue (south of Sunset Drive): 1 lane in each direction.
- Sunset Drive: 1 through lane and 1 left-turn lane in each direction on the westbound side of Sunset Drive. Complete the construction of intersection roadway from Station 699+80 to Station 700+00, 0’ to 35’ RT after Stage 3 is complete but before Stage 4 begins during weekend hours only. Route northbound and southbound traffic around the temporary construction area in the northbound lanes of S. East Avenue south of Sunset Drive. Flagging operations will be necessary for the intersection roadway construction.

Stage 2A

- S. East Avenue (south of Sunset Drive): keep all lanes open to traffic.
- Sunset Drive: construct raised medians. Maintain 1 through lane and 1 left-turn lane in each direction.
- Complete lighting at the intersection of S. East Avenue and Sunset Drive.

Stage 2B

- Maintain temporary signals for the duration of S. East Avenue Stage 2 construction from Station 527+00 to Station 550+00.
- Sunset Drive: open all lanes to traffic on the west and east legs of the intersection.
- S. East Ave (south of Sunset Drive): open all lanes to traffic.
- S. East Ave (north of Sunset Drive): 1 northbound lane to Roberta Avenue on the west side of S. East Avenue.
- Construct permanent signals after the completion of S. East Avenue Stage 2 construction from Station 527+00 to Station 550+00.

C Roadway Closures

Close S. East Avenue between Roberta Avenue and Estberg Avenue for the duration of the project as shown in the Construction Staging section of the plans. Side roads crossing S. East Avenue shall be closed for the duration of the project. Keep one northbound lane on S. East Avenue between Sunset Drive and Roberta Avenue open to traffic for the duration of the project. Maintain the northbound S. East Avenue to eastbound Roberta Avenue right-turn movement as shown in the plans.

Maintain right-turns into and out of Hickory Drive and Big Bend Road along Sunset Drive for the project duration. Left turns into and out of Hickory Drive and Big Bend Road are dependent on the stage of construction as shown in the plans.

At all times maintain emergency vehicle access to the entire project and emergency access to all homes, schools and businesses. Do not leave trenches or excavations open overnight that will block East Avenue or a side road within the project limits. Delineate all trenches or excavations with drums and barricades that will be left open overnight.

D. Pedestrian Access

Provide pedestrian access at all times. The contractor shall conduct his construction operations in a safe manner taking into consideration the traveling public, his workers, and access to-and-from the construction zone.

Maintain sidewalk and curb ramps at all times except under direction of the engineer. In areas of sidewalk or curb ramp construction, provide a temporary surface for pedestrian access at all times. The temporary surface shall meet Americans with Disabilities Act Accessibility Guidelines (ADAAG) requirements and shall consist of temporary asphaltic surface, any grade of concrete, skid resistant steel plating, warning fields, or alternative material as approved by the engineer. Gravel or base course material is not acceptable. Maintaining sidewalk and curb ramps is considered incidental to the contract.

Keep the sidewalk open, including curb ramps, on either the west or east side of S. East Avenue. Maintain pedestrian movements at all times crossing the East Avenue and Sunset Drive signalized intersection. Maintain pedestrian movements at all times crossing the construction zone. Pedestrian crossings of intersections shall meet requirements of the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and shall consist of

temporary asphaltic surface, any grade of concrete, skid resistant steel plating, warning fields, or alternative material as approved by the engineer. Gravel or base course material is not acceptable. Maintain ADA accessible pedestrian walkways that are free from mud, sand, and construction debris.

Maintain transit access at all times on S. East Avenue within the project limits to either existing bus stops or temporary bus stops approved by Waukesha Metro Transit. The contractor shall contact Waukesha Metro Transit 2 weeks prior to construction to get the bus stop shelter removed on S. East Avenue south of Sunset Drive. The contractor shall contact Waukesha Metro Transit 2 weeks prior to the completion of the S. East Avenue/Sunset Drive intersection to get the bus stop shelter reinstalled on S. East Avenue south of Sunset Drive.

E Property Access

Notify property owners at least two days (48 hours) prior to restricting driveway access in advance of water main, sanitary lateral, and storm sewer installation, concrete curb and gutter installation and curing time and driveway reconstruction. Residential driveways may be closed for water main and storm sewer installation and driveway construction. If a business has two driveways, keep one open while constructing the other. If a property has one driveway, construct one half at a time or coordinate with the property owner. Commercial driveways shall be constructed in stages or a temporary access shall be placed. Construct temporary driveway approaches with Base Aggregate Dense 1 ¼-Inch within 4 hours of the removal of the existing driveway approach. Width of the temporary driveway approach shall be wide enough for one car to access the existing driveway. The temporary driveway approach shall be maintained until the concrete curb and gutter and driveway apron are constructed.

Residents shall be allowed to park in the construction zone from 7:00 PM to 7:00 AM.

F Advance Notification

Notify the City of Waukesha Police and Fire Departments of all roadway closures and traffic control changes 48 hours in advance of roadway closures. Notifications must be given by 4:00 PM on Thursday for any such work to be done on the following Monday.

City of Waukesha Police Department: (262) 524-3831

City of Waukesha Fire Department: (262) 524-3651

G Detour Routes

Route traffic as shown on the plans. Install required traffic control and detour route signs as shown on the plans at least 14 days prior to commencing construction and remove after completion of the project. Cover advance warning signs and route signs until work begins.

5. Utilities.

This contract does not come under the provision of Administrative Rule Trans 220.

There are underground and overhead utility facilities located within the project limits and there are known utility adjustments required for this construction project. Coordinate construction activities with a call to Digger's Hotline or a direct call to the utilities which have facilities in the area as required per statutes. Use caution to ensure the integrity of underground facilities and maintain code clearance from overhead facilities at all times.

Some of the work described below is dependent on coordination of work being performed by the contractor at a specific location. In such situations, provide a good faith notice to both the engineer and the affected utility of when the utility is to start work at the site. Provide this notice 14 calendar days in advance of when you anticipate the prior work being completed and the site will be available to the utility. Follow-up with and provide a confirmation notice to the engineer and the utility not less than 3 working days before the site will be ready for the utility to begin its work.

Bidders are advised to contact each utility company listed in the plans prior to preparing their bids, to obtain current information on the status of any utility within the project work limits.

If a conflict with abandoned utility facilities is encountered, contact the appropriate utility owner/representative for instructions on proper removal and disposal of said facility.

Known utilities on the project are as follows:

AT&T Wisconsin (telecommunications) has underground facilities within the construction project. The existing facilities include:

- S. East Avenue:
  - Buried cable along the north side of E. Sunset Drive travels west under the sidewalk at approximately 50' LT. The cable then travels northwest under the sidewalk to a point approximately at 35' RT along the S. East Avenue alignment. The cable continues north along the east side of S. East Avenue outside of the sidewalk to approximately Station 532+75, where it then begins traveling north in the terrace to Station 534+25. The cable transitions to a location outside the sidewalk again and ends at approximately Station 536+25. A second conduit begins at Station 527+68, 26' RT and continues north in the terrace along S. East Avenue to Station 539+06 (variable width) where it turns east.

AT&T does not have manholes or duct lines between Sunset Drive and Estberg Avenue.

Location and Conflict	Resolution
1. Buried telephone cable in conflict with proposed storm sewer:	
S. East Avenue Station 527+23, 24' LT; Station 527+69, 11' LT **Sunset Drive** Station 699+10, 47' RT Station 700+75 to 701+25, 51' LT	AT&T to adjust cable prior to construction.
2. Telecommunication manholes in conflict with roadway/grading:	
Station 526+23, 90' LT	AT&T to adjust manholes during construction.

The AT&T Wisconsin contact is Alper Kolcu, (262) 970-8494, ak308x@att.com.

City of Waukesha Sanitary Sewer has sanitary sewer throughout the project limits. The existing facilities locations include:

- S. East Avenue:
  - 8-inch main travels south from the centerline of Sunset Drive through the south project limit at 55' RT.
  - 8-inch main continues north from the centerline of Sunset Drive along the centerline of S. East Avenue to the centerline of Hoover Avenue.
  - 10-inch main continues north from the centerline of Hoover Avenue to the north project limit along the centerline of S. East Avenue.
- Sunset Drive:
  - 18-inch main travels west from the centerline of S. East Avenue through the project limit along the centerline of W. Sunset Drive.
  - 15-inch main travels east from the centerline of S. East Avenue through the project limit along the centerline of E. Sunset Drive.
- E. Roberta Avenue:
  - 8-inch main travels east from the centerline of S. East Avenue through the project limit along the centerline of E. Roberta Avenue.
- Numerous sanitary sewer laterals exist throughout the project length. Sanitary sewer laterals are owned by the property owners and will not be marked by the City of Waukesha or Digger's Hotline representative.

Spot repairs to the City of Waukesha sanitary sewers will be done prior to the project. Sanitary laterals shall be replaced during construction by the highway contractor as non-participating items. Sanitary sewer manhole covers in conflict with grading and paving operations will be reconstructed during construction by the highway contractor as non-participating items. Any necessary granular backfill is incidental and shall follow Standard Spec 209.2.1(4) without allowance to use Grade 2 (i.e. use Grade 1 only).

The City of Waukesha Sanitary Sewer contact is Chris Langemak, (262) 524-3600, clangema@ci.waukesha.wi.us

The **City of Waukesha** has a **Fiber Optic Line** buried under the sidewalk on the east side of S. East Avenue from Roberta Avenue to Estberg Avenue.

Location and Conflict	Resolution
1. Buried fiber optics in conflict with proposed storm sewer:	
S. East Avenue Station 544+99, 31' RT	City of Waukesha to adjust fiber optic conduit during construction.

Refer to the City of Waukesha Street Lighting contact Dale Evans, (262) 524-3600.

The **City of Waukesha** has **Street Lighting** on the east side of S. East Avenue on the south leg of the intersection of S. East Avenue/Sunset Drive.

Standard lighting will be placed along both sides of S. East Avenue for the entire project length and in the medians along Sunset Drive under this contract. All lighting will have LED luminaires.

Existing lighting and conduit components shall be removed and stored for reinstallation, transported or disposed of. See the lighting plans and the specifications Removing Lighting Units.

The City of Waukesha Street Lighting contact is Dale Evans, (262) 524-3600, devans@ci.waukesha.wi.us

The **City of Waukesha** has **Traffic Signals** at the intersection of S. East Avenue/Sunset Drive. The signals will be reconstructed as part of the project.

The City of Waukesha Traffic Signal contact is Michael Grulke, (262) 524-3600, mgrulke@ci.waukesha.wi.us

Waukesha Water Utility has facilities within the construction project.

Waukesha Water Utility is planning to replace the water main for the entire project length as a part of the S. East Avenue project. Waukesha Water Utility will replace the water laterals with their own forces prior to construction. If necessary, water valves will be adjusted by Waukesha Water Utility prior to paving operations.

The Waukesha Water contact is Kelly Zylstra, (262) 521-5272, kzylstra@ci.waukesha.wi.us

TDS Metrocom has buried fiber optic cable within the project limits. The existing TDS Metrocom facilities are located at the following locations:

- S. East Avenue:
  - Along the west side of S. East Avenue in the terrace south of Sunset Drive. Crosses Sunset Drive at about Station 699+50.
  - Along the west side of S. East Avenue under the existing sidewalk north of Sunset Drive.

- Sunset Drive:
  - Cable begins in the northwest quadrant of the Sunset Drive/S. East Avenue intersection, crosses Sunset Drive at approximately Station 699+10, continues southeast and crosses S. East Avenue at approximately Station 525+50, travels northeast and east along Sunset Drive in the south terrace through the east project limit.

Location and Conflict	Resolution
1. Buried fiber optics in conflict with proposed storm sewer:	
S. East Avenue Station 525+45, 40' LT; Station 525+74, 44' LT;	TDS Metrocom to adjust fiber optic conduit during construction.
2. Buried fiber optics in conflict with proposed water main:	
S. East Avenue Station 525+57, 9' LT	TDS Metrocom to adjust fiber optic conduit during construction.
3. Buried fiber optics in conflict with proposed traffic signals:	
S. East Avenue Signal SB4 Permanent and temporary signal and pedestrian pole bases in the northwest quadrant of the Sunset Drive/S. East Avenue intersection	TDS Metrocom to adjust fiber optic conduit during construction.
4. Fiber optic manholes in conflict with construction/grading:	
S. East Avenue Station 525+43, 44' LT; Station 541+46, 30' LT; Station 548+30, 34' LT	TDS Metrocom to adjust manholes during construction.

The TDS Metrocom contact is Michael Johnson, (262) 754-3052, michael.johnson@tdstelecom.com

Time Warner Cable has aerial and buried facilities within the construction project. The existing Time Warner Cable facilities are located at the following locations:

- Aerial facilities are on We Energies (Electric) poles from Sunset Drive to Roberta Avenue.
- Buried facilities are located under the west side curb and gutter of S. East Avenue south of Sunset Drive. Facilities cross Sunset Drive and transfer to a power pole in the northwest quadrant to overhead cable.

Location and Conflict	Resolution
1. Overhead Lines in S. East Ave / Sunset Drive intersection:	
East Avenue / Sunset Drive intersection Video detection cameras are being placed in all four quadrants of the East Avenue / Sunset Drive intersection. The cameras will be mounted on the ends of 8' luminaire arms attached to 30' poles. The nominal height of the camera will be 30'. Video detection cameras require overhead wires to have 10' of clearance horizontally and vertically. The overhead wires shall also be at the same height or higher than the camera.	Time Warner Cable will complete work in coordination with WE Energies Electric prior to construction.
2. Buried telecommunication cable in conflict with proposed storm sewer/signals:	
S. East Avenue Station 525+25, 28' LT; Station 526+13, 42' LT (Signal SB4); Permanent and temporary signal and pedestrian pole bases in the northwest quadrant of the Sunset Drive/S. East Avenue intersection	Time Warner Cable to abandon cable prior to construction.
3. Buried telecommunication cable in conflict with proposed water main:	
Sunset Drive Station 699+61, 15' LT	Time Warner Cable to abandon cable prior to construction.

Time Warner Cable aerial cable attached to We Energies poles in conflict with construction will be relocated in conjunction with the We Energies electric poles prior to construction.

The Time Warner Cable contact is Steve Cramer, (262) 277-4045, steve.cramer@twcable.com

We Energies (Electric) have aerial and underground facilities within the construction project. We Energies Electric facilities are located at the following locations:

- S. East Avenue:
  - Underground facilities located from approximately Station 527+00 to Station 531+30 18' LT. The facility crosses S. East Avenue at Station 531+30 to a power pole.
  - Underground facilities located from Station 532+75 to Station 536+27 in the terrace and outside the sidewalk. At each terminal the facility turns east.
  - Underground facilities located from Station 548+40 to Station 550+35 31' RT
  - Aerial facilities located along the east side of S. East Avenue between Sunset Drive and 250' south of Hoover Avenue.
  - Aerial facilities continue along the west side of S. East Avenue between 175' south of Hoover Avenue to Roberta Avenue.
  - Aerial facilities continue along the east side of S. East Avenue between Roberta Avenue and 100' south of Estberg Avenue.

- Sunset Drive:
  - Underground facilities travel under the north side curb from the west project limit to Station 699+50. It then connects to an electric manhole at Station 699+90, 48' LT. The facility continues east across S. East Avenue and then continues under the curb from Station 700+55 through the east project limit.
  - Underground facilities cross E. Sunset Drive at Station 701+23. The north side continues north beyond the right-of-way. The south side turns east at 30' RT and south at Station 701+67.

Location and Conflict	Resolution
1. Power/Light poles located within the 2-foot minimum lateral clearance (from face of curb):	
S. East Avenue Station 527+25, 26' RT; **Sunset Drive** Station 699+26, 35' LT	We Energies to relocate poles prior to construction. Existing lighting is to remain functional during construction operations.
2. Power/Light poles and guy wires potentially in conflict with construction/grading:	
S. East Avenue Station 525+71, 67' RT Station 528+25, 25' RT; Station 536+82, 24' LT; (Guy wires) Station 537+12, 24' LT; Station 539+05, 25' LT; Station 540+31, 25' RT; (Light pole) Station 543+22, 24' LT; Station 545+37, 25' LT; Station 545+58, 25' LT: (Guy wires)	We Energies to relocate poles prior to construction. Existing lighting is to remain functional during construction operations. We Energies existing lighting poles to be removed upon request (5 days notice).

Station 546+91, 25’ LT; (Light pole) Station 547+32, 25’ RT; Station 548+33, 24’ RT; **Sunset Drive** Station 701+73, 55’ LT (Guy wires)	
3. Guy wires located within the 2-foot minimum lateral clearance (from face of curb):	
Sunset Drive Station 701+25, 45’ LT	We Energies to relocate wires prior to construction.
4. Buried electric potentially in conflict with proposed storm sewer/lighting conduit/signals:	
S. East Avenue Station 527+24, 17’ LT; Station 527+52, 18’ LT; Station 529+25, 18’ LT; Station 530+17, 18’ LT; Station 530+75, 18’ LT; Station 531+29, 13’ LT **W. Sunset Drive** Station 696+64, 26’ LT; Station 698+74, 31’ LT; Station 699+52, 36’ LT Station 700+39, 50’ LT; Station 701+49, 38’ RT; Station 700+50 to 702+40, 53’ LT	We Energies to adjust electric conduit prior to construction.
5. Electric manholes potentially in conflict with construction/grading:	
S. East Avenue Station 527+03, 17’ LT; Station 531+25, 18’ LT	We Energies to adjust manholes during construction.
6. Overhead lines potentially in conflict with proposed traffic signals/lighting:	
S. East Ave / Sunset Drive intersection Video detection cameras are being placed in all four quadrants of the S. East Avenue / Sunset Drive intersection. The cameras will be mounted on the ends of 8’ luminaire arms attached to 30’ poles. The nominal height of the camera will be 30’. Video detection cameras require overhead wires to have 10’ of clearance horizontally and vertically. The overhead wires shall also be at the same height or higher than the camera.	We Energies to relocate poles prior to construction. Existing lighting is to remain functional during construction operations. We Energies existing lighting poles to be removed upon request (5 days notice).

Station 526+49 RT (Signal SB11) Station 699+50 LT (Signal SB6) Station 527+08 LT (Signal SB9) **S. East Avenue** Station 528+62, 24.9' RT (Light Pole); Station 531+09, 23.0' RT (Light Pole); Station 533+80, 23.0' RT (Light Pole); Station 536+44, 23.0' RT (Light Pole); Station 537+58, 23.0' LT (Light Pole); Station 540+25, 23.6' LT (Light Pole); Station 542+76, 23.7' LT (Light Pole); Station 545+53, 23.2' LT (Light Pole); Station 546+72, 23.0' RT (Light Pole); Station 548+79, 22.9' RT (Light Pole)	

Existing luminaires and arms on power poles are to be removed by We Energies (Electric) after construction is completed.

Give We Energies three days minimum notice for electric adjustments required during construction. The We Energies (Electric) contact is LaTroy Brumfield, (414) 221-5617, LaTroy.Brumfield@we-energies.com

We Energies (Gas Operations) have underground facilities in conflict with the project limits. The existing gas facilities are as follows:

- S. East Avenue:
  - 6-inch steel gas main travels north along the west side of S. East Avenue from Station 526+95 through the north project limit, approximately 25' LT.
  - 2-inch PE gas main travels along the east side of S. East Avenue between Roberta Avenue and Estberg Avenue, from Station 545+43 to Station 552+20, 26' RT.
  - Gas main crossings located at Station 527+60, 537+15, 540+28 and 545+43.

- Sunset Drive:
  - 8-inch steel gas main travels east along the south side of Sunset Drive 45' RT from the west project limit to 698+93. The main then continues northeast to Station 699+30, 26' RT and then travels east through the project limit.
  - 2-inch gas main travels east along the north side of Sunset Drive from Station 697+18, 39' LT and ends connecting to the 6-inch gas main on S. East Avenue.

- Hoover Avenue:
  - 2-inch PE gas mains connect to the 6-inch gas main at 23’ LT and 23’ RT of the Hoover Avenue centerline and travel west through the project limits.

- W. Roberta Avenue:
  - 2-inch PE gas mains connect to the 6-inch gas main at points 23’ LT and 23’ RT of the W. Roberta Avenue centerline and travel west through the project limits.

- E. Roberta Avenue:
  - 2-inch PE gas main connects at the crossover point along S. East Avenue at Station 545+43, travels diagonally under the sidewalks to a point 27’ LT of the E. Roberta centerline. The main then travels through the project limits.

- Douglas Avenue:
  - 2-inch PE gas mains connect to the 6-inch gas main at points 23’ LT and 23’ RT of the Douglas Avenue centerline and travel west through the project limits.

We Energies (Gas) facilities were not fully marked in the field by Digger’s Hotline. System maps were used to locate existing facilities. These locations include:

- Coolidge Avenue:
  - 2-inch PE gas mains travel west along the north and south side of Coolidge Avenue through the project limits.

Numerous gas laterals exist throughout the project length.

Location and Conflict	Resolution
1. Gas main in conflict with proposed storm sewer:	
S. East Avenue Station 526+33, 42’ RT; Station 527+60, 11’ LT; Station 537+15, 13’ LT; Station 540+28, 13’ LT; Station 545+43, 13’ LT; **E. Sunset Drive** Station 698+99, 43’ RT; Station 701+08, 25’ RT; Station 701+63, 38’ RT	We Energies to relocate gas mains prior to construction.
2. Gas main in conflict with proposed water main:	
S. East Avenue Station 526+31, 9’ LT and 6’ RT; Station 527+60, 6’ RT; Station 537+14, 7’ RT; Station 538+67, 27’ LT;	We Energies to relocate gas mains prior to construction.

Station 540+28, 7' RT; Station 541+83, 27' LT; Station 545+18, 24' LT; Station 545+43, 13' RT; Station 548+33, 30' LT	
3. Gas main/valves in conflict with construction/grading:	
S. East Avenue Station 527+07, 22' LT; Station 527+56, 25' LT (Lighting); Station 532+80, 27' LT; Station 537+14, 27' RT; Station 537+20, 34' LT; Station 538+44, 41' LT; Station 538+98, 39' LT; Station 541+65, 43' LT; Station 542+76, 24' LT (Lighting); Station 544+81, 40' LT; Station 545+30, 39' LT; Station 545+32, 41' RT; Station 545+45, 27' RT; Station 545+50, 23' LT (Overhead sign support and lighting) Station 547+86, 24' LT (Lighting) Station 550+10, 24' LT (Lighting) **Sunset Drive** Northwest quadrant of Sunset Drive/S. East Avenue intersection (Signals SB6, SB7, SB8, SB9)	We Energies to relocate gas mains prior to construction. We Energies to adjust valves during construction as needed.

Give We Energies three days minimum notice for gas main adjustments required during construction. The We Energies (Gas Operations) contact is LaTroy Brumfield, (414) 221-5617, LaTroy.Brumfield@we-energies.com

6. Erosion Control.

The contractor shall prepare and submit an erosion control implementation plan (ECIP) for the project including borrow sites, material disposal sites, dust control, and dewatering in accordance to Chapter TRANS 401 requirements. The erosion control implementation plan shall supplement information shown on the plans and shall not reproduce it. The erosion control implementation plan will identify how the contractor intends to implement the project's erosion control plan.

Provide the ECIP 14 calendar days prior to the pre-construction conference. Provide 1 copy of the ECIP to WisDOT and 1 copy of the ECIP to the WDNR Liaison Craig Webster. 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. Do not implement the ECIP until it has been approved by the department.

Re-topsoil of graded areas, as designated by the engineer, immediately after grading is completed within those areas. Seed, fertilize, and mulch/erosion mat top-soiled areas, as designated by the engineer, within 5 calendar days after placement of topsoil. If graded areas are left exposed for more than 14 calendar days, seed those areas with temporary seed.

When performing roadway cleaning operations, the contractor shall use equipment having vacuum or water spray mechanism to eliminate the dispersion of dust. If vacuum equipment is employed, it shall have suitable self-contained particulate collectors to prevent discharge from the collection bin into the atmosphere.

Stockpile excess material or spoils on upland areas away from wetlands, floodplains and waterways. Stockpiled soil shall be protected against erosion. If stockpiled material is left for more than 14 calendar days, seed the stockpile with temporary seed.

7. Public Convenience and Safety.

Revise standard spec 107.8(6) as follows:

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

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

City of Waukesha Department of Public Works personnel will inspect construction of sanitary sewer under this contract. Final acceptance of the sanitary sewer construction will be by the City of Waukesha Department of Public Works.

Waukesha Water Utility personnel will inspect construction of water main under this contract. Final acceptance of the water main construction will be by the Waukesha Water Utility.

9. Weekly Coordination Meeting.

The contractor shall arrange and conduct weekly meetings between the department, local officials, utilities and subcontractors to discuss the project schedule of operations, traffic control, erosion control and any unresolved conflicts. The first meeting shall be held prior to the start of work under this contract.

10. Notice to Contractor – Potential Contamination Beyond Construction Limits.

The department completed testing for contaminated soil at locations within this project where excavation is required. Although the department's Phase 2.5 investigation did not reveal contamination within the planned construction limits, the Phase 1 Hazardous Materials Assessment indicates that petroleum-contaminated soil potentially exists adjacent to South East Avenue at the following location:

S. East Ave – Station 527+10 to 532+90 – beyond the right construction limits
S. East Ave – Station 537+10 to 538+75 – beyond the left construction limits
Sunset Drive – Station 700+10 to 710+00

The contractor is advised to exercise caution when excavating for storm sewer in the vicinity of an existing asbestos cement sanitary sewer pipe, which exists in the east terrace of S. East Avenue from Station 522+50 to 526+56 RT.

The potential contamination 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 this location to ensure that they do not extend beyond the excavation limits indicated in the plans. Should contamination be encountered within the right-of-way either before or during construction, notify the appropriate person in the DNR Solid Waste Section prior to continued operation.

The Hazardous Materials Report is available by contacting:

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

11. Tree Protection.

The contractor shall take all necessary precautions to protect trees within the project limits. Where the contractor perceives that even with reasonable care, damage may occur to a tree during construction, the City of Waukesha Forestry Division shall be contacted at (262) 524-3710 to request a preconstruction meeting on site. If approved by the engineer and the City of Waukesha Forestry Division, tree roots may be sawed to facilitate construction of curb and gutter or sidewalk. Sawing of tree roots shall be paid under Tree Root Sawing.

Only the City of Waukesha Forestry Division will repair damage caused to any street tree. Charges for any or all of the following may be levied: the appraised value of the tree, cost of removal, cost of repair or rejuvenation, and the cost of replacement planting. These costs will be billed to the contractor, at the option of the City of Waukesha. If, in the opinion of the City of Waukesha Forestry Division, the tree has been damaged to the point that it warrants removal, the City of Waukesha will assess the contractor $100 per inch

diameter of the tree. A field measurement will be taken at 4.5 feet above ground to determine the tree diameter. The contractor will not be assessed for damage caused by sawed roots that have been approved for sawing by the engineer and the City of Waukesha Forestry Division. Wis. Stat. 157.70.

12. 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).

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

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

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

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

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

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

Updates for Compliance
Each year, as a service, the Wisconsin department of agriculture, trade and consumer protection distributes an updated federal CFR listing to nursery license holders and other affected persons in this state. More frequent updates, if any, are available on the Department of Agriculture, Trade, and Consumer Protection (DATCP) website at **www.datcp.state.wi.us** . Subsection (1) applies to new regulated areas as those areas are identified in the CFR, regardless of whether affected persons receive update notices from the DATCP. Persons may request update notices by calling (608) 224−4573, by visiting the DATCP website, or by writing to the following address:

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

Regulated Items
More frequent updates, if any, are available on the DATCP website at **www.datcp.state.wi.us** . Subsection (1) applies to new regulated areas as those areas are identified in the CFR, regardless of whether affected persons receive update notices from DATCP. Persons may request update notices by calling (608) 224−4573, by visiting the DATCP website, or by writing to the above address. 201-SER1 (20100401)

13. Traffic Signals, General.

Work under this item shall consist of furnishing and installing all materials for traffic signals and interconnect at the following intersections in the City of Waukesha, WI, in accordance to the plans and the State of Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction, 2015 Edition, and these special provisions.

- S. East Avenue and Sunset Drive

The contractor will furnish all materials, which include but are not limited to, the traffic signal controller, the traffic signal cabinet, and traffic signal control equipment as listed in the plans (such as, pedestal bases, transformer bases, traffic signal standards, poles, monotube signal poles and arms, traffic signal faces, backplates, pedestrian signal faces, pedestrian push buttons, traffic signal mounting hardware, video detection system, emergency vehicle preemption system, concrete foundations, etc.). The existing traffic signal will be removed and all above-ground equipment and pull box rims and lids will be

returned to the city. Make arrangements with Steve Dzeikan, (414) 507-1132, for delivery to the Municipal Garage at 300 Sentry Drive, Waukesha, WI 53186.

Furnish the engineer with material lists and specifications of all traffic control equipment for approval prior to installation.

The contractor is responsible for all application fees and for any fines, penalties, damage done to property, etc., billed by the City of Waukesha.

The contractor is responsible for requesting the electrical service installation or relocation from the power company and the city shall pay the installation costs.

The contractor shall stake the proposed locations of traffic signal items 10 days prior to starting work so that the locations of the proposed facilities can be approved by the City of Waukesha. Any field changes regarding the location of the signal poles, pull boxes, etc. shall be approved by the City of Waukesha.

The contractor shall request a signal inspection of the completed signal installation. This request shall be made to the city at least three working days prior to the time of the requested inspection.

Note that failure to comply with the state standards and specifications may result in the cost of the corrections to be made at the contractor's expense.

14. Electrical Conduit.

Append standard spec 652.3.1.2 with the following:

The contractor shall directional bore, not trench, in areas of trees, shrubbery, and under driveways, sidewalks and streets unless otherwise noted. Boring limits in areas of trees and shrubs depend on the diameter of the tree or shrub trunk. For example, directional boring is required if a conduit will be installed within 12 inches of the face of the trunk of a 2-inch diameter tree, or installed within 15 feet of the face of the trunk of a 20-inch diameter tree. Methods and boring limits must be approved by the engineer and City of Waukesha Forester prior to construction. Trenching or excavation for pull boxes, signal bases and controller cabinets within the root zone of a tree shall not be permitted. The minimum depth of bored conduit within the root zone, as described above, shall be 30 inches.

The contractor shall strip the minimum length of jacket necessary to make terminations in a neat and technically proficient manner.

15. Lighting Systems, General.

A General

Work shall conform to standard specs 651, 652, 653, 654, 655, 656, 657 and 659 and these special provisions.

B Corrosion Protection
Corrosion protection measures described in standard specs 657.3.1 and 657.3.5 are invoked for aluminum light poles.

C Splices
Poles:
Splices shall accept (4) #14-#2 conductors, be underground/overhead rated and include gel filled hinged splice closure. Utilize NSI Easy-Splice Gel Tap Splice Kit series connectors (ESGTS-2). Provide 2 layers of electrical tape around closure. Split bolts are not allowed.

Pull Boxes:
Splices shall accept quantity and size of conductors required at individual pull boxes (which may be of differing configurations), be direct burial and submersible rated. Utilize multi-cable compression connectors with the splice encased in a Scotchcast 85 series multi-mold permanent resin compound. Split bolts are not allowed. No splices are allowed in pull boxes, unless indicated on the plans.

D Branch Circuit Tagouts
Any circuit which the contractor does not personally tag out at the disconnect shall be considered live and is subject to being activated by another person with no notice to the contractor. Tagouts shall be made with manufactured tags, and shall be endorsed with the date and the name of the contractor. Tagouts shall be cleared at the end of the work day.

16. Water Main, General.

It is the intent of these special provisions to set forth the final contractual intent as to the matter involved and shall prevail over the standard specifications and plans wherever in conflict therewith.

A Buy America
This is a Buy America project. Conform to the requirements of the Buy America Provision within this proposal.

B General Provisions for Water Main
All construction and installation shall be in accordance to the following: Specifications for Water Main and service Lateral Materials and the Installation of Water Main and Appurtenances for Waukesha Water Utility of the City of Waukesha dated February 28, 2011, the regulations of the Wisconsin Department of Natural Resources (WDNR), the Standard Specifications for Sewer and Water Construction in Wisconsin – Sixth Edition, AWWA Specifications, manufacturers' recommendations and these Special Provisions.

The contractor shall install approximately 2760-Linear Feet of 16-Inch Ductile Iron Pipe AWWA C-151, (Thickness Class 50) Water Main, 1230-Linear Feet of 12" and 300-Linear Feet of 8" Polyvinyl Chloride (Class DR-18) AWWA C-900 or Ductile Iron Pipe (Thickness Class 52) Water Main. The contractor shall connect the new water main in S. East Avenue with the existing water mains at Sunset Drive, Hoover Avenue, Coolidge Avenue, W. and E. Roberta Avenue and Douglass Avenue. The contractor shall also

abandon the existing 6-Inch and 12-Inch C.I. water mains, gate valves, hydrants and appurtenances in S. East Avenue and the intersecting streets. The proposed water main relay installation will be extended through the right-of-way, as shown on the plans, in strict compliance with these specifications and plans.

The contractor will need to coordinate with the Waukesha Water Utility all work associated with connecting the new and abandoning the old water main in S. East Avenue at all of the intersections, as shown on the plans. The Waukesha Water Utility will assist in turning the existing valves to isolate these areas for the installation of the valves, fittings, caps and plugs. The water main will not be allowed to be shut down before 8:00 AM and there will be no extra costs or change orders allowed for down time associated with the Waukesha Water Utility crews turning the water off for the above work. The contractor is responsible for notifying all customers that will have their water shut off for the above work or in an emergency situation.

The contractor shall view the site prior to bidding to become familiar with the existing conditions. It will be the responsibility of the contractor to work with the utilities located in the right-of-way to resolve conflicts during the construction process. The location of structures and obstacles shall not be taken as conclusive. Verification to the satisfaction of the contractor shall be assumed as a condition of his/her bid; and therefore, the contractor shall be solely responsible for all damages resulting from his/her activities.

All contractors shall submit a Certificate of Insurance, as required by the Waukesha Water Utility, indicating that the insurance meets the Waukesha Water Utility's requirements and limits; and is in effect for the project.

Prior to construction, a pre-construction meeting will be conducted. The contractor will not receive payment for, or approval of, any work undertaken without a pre-construction meeting or approval of the Waukesha Water Utility.

Staking shall be provided by the Waukesha Water Utility on a one-time basis at no cost to the contractor. After stakes are set, it shall be the contractor's responsibility to protect all survey marks, stakes, nails, etc. Re-staking any portion of the work shall be done at the contractor's expense. The contractor shall provide 72 hours (3 work days) notice of his/her need for staking.

A Waukesha Water Utility representative shall provide inspection for all water main installation and abandonment. The contractor shall provide 72 hours (3 work days) notice of the anticipated need for inspection services. No work shall be undertaken without an inspector being on site or without the permission of the Waukesha Water Utility. Payments may be denied, or removal of work may be ordered, for work accomplished without an inspector present or without the approval of the Waukesha Water Utility.

The contractor is responsible for damage to adjoining buildings and grounds caused in the construction.

The location of structures and obstacles shall not be taken as conclusive. Verification to the satisfaction of the contractor shall be assumed as a condition of his/her bid; and therefore, the contractor shall be solely responsible for all damages resulting from his/her activities.

Claims for extra cost or time must be submitted in writing to the Waukesha Water Utility prior to proceeding with work.

The contractor shall notify all utilities having facilities in the project area and the police and fire departments when construction will commence. Said notice shall be given 72 hours prior to the construction start.

The contractor shall be solely responsible for providing trench support in accordance to all applicable State and Federal regulations. The Waukesha Water Utility and Inspector shall be held harmless in all matters regarding shoring and bracing.

Side sloping of trenches will not be allowed where damage to sidewalk, curb, structures and underground utilities would be caused by such side sloping.

Existing valves and hydrants shall be operated only by Waukesha Water Utility personnel or in the presence of the inspector, as authorized by the Waukesha Water Utility.

C Permits

The contractor shall obtain all permits required to work in the right-of-way and pay all the applicable charges and fees associated with these permits. It shall be the responsibility of the contractor to identify and obtain any permit needed for the work. The permits should include, but are not limited to, the Traffic Control Plans for construction outside of the WisDOT road construction paving limits.

All permit costs shall be considered incidental to the various mobilization bid items for the Contract.

The contractor shall meet the conditions of all permits and must keep a copy of each individual permit on site, at all times, throughout construction.

D Materials

The contractor shall submit to the Inspector and Owner, for approval, a list of all materials he/she intends to use prior to ordering and delivery to the job site, including the names of all material suppliers and Buy America certification letters.

Storage of materials for construction will be permitted on the job site with prior city engineering and owner approval. Care shall be taken to avoid blocking driveways or interfering with traffic. Materials stored within the street right-of-way shall be barricaded and lighted with emergency flashers.

The Waukesha Water Utility will provide the tapping sleeves, tapping valves, the valve boxes for the tapping valves and will tap the existing water mains, for connecting the water mains. The contractor shall provide the trench, trench shield and a means for lowering the tapping machine.

The contractor will need to install a 5 LB anode bag to each copper service lateral. The Waukesha Water Utility will provide the anodes. The connection shall be made on the fitting end that connects to the copper pipe, in the tracer wire attachment nut.

The contractor shall provide all materials (pipe, fittings, valves, hydrants, accessories and sterilizing chemicals), equipment and labor to install the 16", 12" and 8" water mains.

Bedding material is required 4-inches under and 12-inches over the pipe as a minimum. Sand is required around all copper water laterals and brass fittings.

The cost for bedding, cover and mechanically compacted granular backfill shall be included in the linear foot of pipe being constructed.

Slurry backfill, if required by the engineer at some locations, will be paid for as a negotiated change to the contract based on the cubic yards installed.

The contractor is responsible for all surplus excavated material.

E Mechanical Compaction

Excavated material or granular backfill shall be mechanically compacted with an initial lift of 2-feet and subsequent lifts of 1-Foot, according to Section 2.6.14 (b) of the Standard Specifications for Sewer and Water Construction in Wisconsin – Sixth Edition. Any deficiency in quantity of backfill material (caused by shrinkage or settlement) shall be supplied at no additional cost to the owner. The cost of mechanically compacted backfill shall be included in the cost of linear foot of pipe being installed.

The Waukesha Water Utility has contracted with a soil testing firm to perform compaction testing on the trenches for all projects. The contractor for this project will be required to meet a minimum compaction of 90% Standard Proctor Density in the bottom 3 feet and a minimum compaction of 95% Standard Proctor Density in the top 3 feet of the excavated material or granular backfill. Testing will be done at no cost to the contractor.

F Testing

All water mains shall be tested in full accordance with the requirements of Chapter 4.15.0 and Section 5.5.18 of the Standard Specifications for Sewer and Water Construction in Wisconsin.

In addition to the above referenced State specifications, the following will apply for all water main flushing activities associated with this project. The contractor shall be responsible for the addition of any temporary standpipes or temporary hydrants (may be supplied by the WWU, when available) as shown on the plans and as required for

completion of the flushing and disinfection portions of the water main work. A minimum of 24 hours after the water main has been filled; flush out the super chlorinated water from the water main. The super chlorinated water must be flushed using a fire hose or other approved DIRECT conveyance device into a tanker, into the sanitary sewer (with prior City Engineering Approval Required) or onto a neutralizer to keep the environment safe. Once the super chlorinated water has been flushed, additional flushing methods should be used. These flushing methods must use the appropriate number of hoses or other DIRECT conveyance devices to reach the minimum water flow rate of 2½ feet per second of water flow in the main as required for proper flushing. These hoses or devices must be supplied, installed and removed by the contractor. The water must be discharged in such a manner as to not promote erosion of the area or movement of site materials off site or into the storm sewer system. This may require discharge directly into an established storm sewer inlet, or conveyance to a clean and paved surface to utilize the existing curbs and storm sewer system. Flow of water from flushing or testing directly across disturbed surfaces will not be allowed. Flow of water within an existing curb and gutter line will only be allowed if the area is completely free of gravel and debris and if the flow fully remains on the undisturbed surface. It may be necessary to remove the inlet protection used during construction for the periods when flushing is occurring; these protections must be properly replaced when flushing has ended.

17. 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, acceptably completed.

E. Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
204.0291.S	Abandoning Sewer	CY

Payment is full compensation for furnishing all materials and excavating and backfilling where necessary.

18. Granular Backfill.

Delete standard spec 209.2.1 (2) and replace with the following:

Gradation Requirements for backfill of storm and sanitary sewer and water main trench excavation			
	Percentage Passing by Weight		
Sieve Size	**Crushed Road Gravel**	**¾-Inch Graded Crushed Stone**	**1-1/2-Inch Graded Crushed Stone**
1-1/2 Inch	- %	- %	100 %
1 Inch	100	100	-
¾ Inch	85 - 100	85 - 100	-
3/8 Inch	50 – 80	50 – 80	30 – 65
No. 4	35 – 60	35 – 65	25 – 55
No. 10	25 – 50	-	15 – 40
No. 40	15 - 30	15 – 30	-
No. 200	5 – 15	5 – 15	2 -12

19. 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:

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

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

B.6.2 Fracture

(1) Test fracture conforming to CMM 8.60. The engineer will waive fractured particle testing on quarried stone.

(2) Maintain a separate fracture control chart for each base aggregate size, source or classification, and type. Set the lower control limit at the contract specification limit, either specified in another special provision or in table 301-2 of standard spec 301.2.4.5. Set the lower warning limit 2 percent above the lower control limit. There are no upper limits.

B.6.3 Liquid Limit and Plasticity

(1) Test the liquid limit and plasticity according to AASHTO T 89 and T 90.

(2) Ensure the material conforms to the limits specified in standard spec table 301-2.

B.7 Corrective Action

B.7.1 General

(1) Consider corrective action when the running average trends toward a warning limit. Take corrective action if an individual test exceeds the contract specification limit. Document all corrective actions both in the project records and on the appropriate control chart.

B.7.2 Placement Corrective Action

(1) Do not blend additional material on the roadbed to correct gradation problems.

(2) Notify the engineer whenever the running average exceeds a warning limit. When 2 consecutive running averages exceed a warning limit, the engineer and contractor will discuss appropriate corrective action. Perform the engineer's recommended corrective action and increase the testing frequency as follows:
1. For gradation, increase the QC testing frequency to at least one randomly sampled test per 1000 tons placed.
2. For fracture, increase the QC testing frequency to at least one test per gradation test.

(3) If corrective action improves the property in question such that the running average after 4 additional tests is within the warning limits, the contractor may return to the testing frequency specified in B.5.3. If corrective action does not improve the property in question such that the running average after 4 additional individual tests is still in the warning band, repeat the steps outlined above starting with engineer notification.

(4) If the running average exceeds a control limit, material starting from the first running average exceeding the control limit and ending at the first subsequent running average inside the control limit is nonconforming and subject to pay reduction.

(5) For individual test results significantly outside the control limits, notify the engineer, stop placing base, and suspend other activities that may affect the area in question. The engineer and contractor will jointly review data, data reduction, and data analysis; evaluate sampling and testing procedures; and perform additional testing as required to determine the extent of potentially unacceptable material. The engineer may direct the contractor to remove and replace that material. Individual test results are significantly outside the control limits if meeting one or more of the following criteria:

1. A gradation control limit for the No. 200 sieve is exceeded by more than 3.0 percent.
2. A gradation control limit for any sieve, except the No. 200, is exceeded by more than 5.0 percent.
3. The fracture control limit is exceeded by more than 10.0 percent.

B.8 Department Testing

B.8.1 General

(1) The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all QV and IA personnel for the project, and provide test results to the contractor within 2 business days after the department obtains the sample.

B.8.2 Verification Testing

B.8.2.1 General

(1) The department will have an HTCP technician, or ACT working under a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified in B.2 for contractor testing personnel for each test result being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.

(2) The department will conduct QV tests of each base aggregate size, source or classification, and type during placement conforming to the following:

1. One non-random test on the first day of placement.
2. At least one random test per 30,000 tons, or fraction of 30,000 tons, placed.

(3) The department will sample randomly, at locations independent of the contractor's QC work, collecting one sample at each QV location. The department will collect QV samples after the material has been bladed, mixed, and shaped but before compacting; except, for 3-inch aggregates, the department will collect samples from the stockpile at load-out. The department will split each sample, test half for QV, and retain half.

(4) The department will conduct QV tests in a separate laboratory and with separate equipment from the contractor's QC tests. The department will use the same methods specified for QC testing.

(5) The department will assess QV results by comparing to the appropriate specification limits. If QV test results conform to the specification, the department will take no further action. If QV test results are nonconforming, add the QV to the QC test results as if it were an additional QC test.

B.8.3 Independent Assurance

(1) Independence assurance is unbiased testing the department performs to evaluate the department's QV and the contractor's QC sampling and testing including personnel qualifications, procedures, and equipment. The department will perform an IA review according to the department's independent assurance program. That review may include one or more of the following:

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

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

B.9 Dispute Resolution

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

(2) Production test results, and results from other process control testing, may be considered when resolving a dispute.

(3) If the project personnel cannot resolve a dispute, and the dispute affects payment or could result in incorporating non-conforming product, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party test results to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material

or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

C (Vacant)

D (Vacant)

E Payment

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

(2) For material represented by a running average exceeding a control limit, the department will reduce pay by 10 percent of the contract price for the affected Base Aggregate bid items listed in subsection A. The department will administer pay reduction under the Nonconforming QMP Base Aggregate Gradation or Nonconforming QMP Base Aggregate Fracture Administrative items. The department will determine the quantity of nonconforming material as specified in B.7.2.

20. 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**.** Include auxiliary lanes in Category I and II segments; crossroads with county, state or U.S. highway designations greater than 1500 feet in continuous length; bridges, bridge approaches; and railroad crossings. Exclude roundabouts and pavements within 150 feet of the points of curvature of roundabout intersections.

(3) The engineer may direct straightedging under standard spec 415.3.10 for pavement excluded from localized roughness under C.5.2 (1); for bridges; and for roundabouts and pavements within 150 feet of the points of curvature of roundabout intersections. Other surfaces being tested under this provision are exempt from straightedging requirements.

B (Vacant)

C Construction

C.1 Quality Control Plan

(1) Submit a written quality control plan to the engineer at or before the pre-pave meeting. Ensure that the plan provides the following elements:

1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of all quality control personnel.
2. The process by which quality control information and corrective action efforts will be disseminated to the appropriate persons. Include a list of recipients, the communication means that will be used, and action time frames.
3. The methods and timing used for monitoring and/or testing ride quality throughout the paving process. Also indicate the approximate timing of acceptance testing in relation to the paving operations.
4. The segment locations of each profile run used for acceptance testing.
5. Traffic Control Plan

C.2 Personnel

(1) Have a profiler operator, certified under the department's highway technician certification program (HTCP), operate the equipment, collect the required data, and analyze the results using the methods taught in the HTCP profiling course. Ensure that an HTCP-certified profiler operator supervises data entry into the material records system (MRS).

C.3 Equipment

(1) Furnish a profile-measuring device capable of measuring IRI from the list of department-approved devices published on the department's web site:

http://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.

(3) Perform daily calibration verification of the profiler using test methods according to the manufacturer's recommendations. Notify the engineer before performing the calibration verification. If the engineer requests, arrange to have the engineer observe the calibration verification and operation. Maintain records of the calibration verification activities, and provide the records to the engineer upon request.

C.4 Testing

C.4.1 Run and Reduction Parameters

(1) Enter the equipment-specific department-approved filter settings and parameters given in the approved profilers list on the department's QMP ride web site.

http://roadwaystandards.dot.wi.gov/standards/qmp/profilers.pdf

C.4.2 Contractor Testing

(1) Operate profilers within the manufacturer's recommended speed tolerances. Perform all profile runs in the direction of travel. Measure the longitudinal profile of each

wheel track of each lane. The wheel tracks are 6.0 feet apart and centered in the traveled way of the lane.

(2) Coordinate with the engineer to schedule profile runs for acceptance. The department may require testing to accommodate staged construction or if corrective action may be required.

(3) Measure the profiles of each standard or partial segment. Define primary segments starting at a project terminus and running contiguously along the mainline to the other project terminus. Field-locate the beginning and ending points for each profile run. When applicable, align segment limits with the sublot limits used for testing under the QMP Concrete Pavement specification. Define segments one wheel path wide and distinguished by length as follows:
1. Standard segments are 500 feet long.
2. Partial segments are less than 500 feet long.

(4) Treat partial segments as independent segments.

The department will categorize each standard or partial segment as follows:

Segments with a Posted Speed Limit of 55 MPH or Greater	
Category	**Description**
HMA I	Asphalt pavement with multiple opportunities to achieve a smooth ride. The following operations performed under this contract are considered as opportunities: a layer of HMA, a leveling or wedging layer of HMA, and diamond grinding or partial depth milling of the underlying pavement surface.
HMA II	Asphalt pavement with a single opportunity to achieve a smooth ride.
HMA III	Asphalt pavement segments containing any portion of a bridge, bridge approach, railroad crossing, or intersection. An intersection is defined as the area within the points of curvature of the intersection radii.
PCC II	Concrete pavement.
PCC III	Concrete pavement segments containing any portion of a bridge, bridge approach, railroad crossing, intersection or gap. An intersection is defined as the area within the points of curvature of the intersection radii.

Segments with Any Portion Having a Posted Speed Limit Less Than 55 MPH	
Category	**Description**
HMA IV	Asphalt pavement including intersections, bridges, approaches, and railroad crossings.
PCC IV	Concrete pavement including gaps, intersections, bridges, approaches, and railroad crossings.

C.4.3 Verification Testing

(1) The department may conduct verification testing (QV) to validate the quality of the product. A HTCP certified profiler operator will perform the QV testing. The

department will provide the contractor with a listing of the names and telephone numbers of all verification personnel for the project.

(2) The department will notify the contractor before testing so the contractor can observe the QV testing. Verification testing will be performed independent of the contractor's QC work using separate equipment from the contractor's QC tests. The department will provide test results to the contractor within 1 business day after the department completes the testing.

(3) The engineer and contractor will jointly investigate any testing discrepancies. The investigation may include additional testing as well as review and observation of both the department's and contractor's testing procedures and equipment. Both parties will document all investigative work.

(4) If the contractor does not respond to an engineer request to resolve a testing discrepancy, the engineer may suspend production until action is taken. Resolve disputes as specified in C.6.

C.4.4 Documenting Profile Runs

(1) Compute the IRI for each segment and analyze areas of localized roughness using the ProVAL software. Also, the contractor shall prepare the ProVAL Ride Quality Module Reports, showing the IRI for each segment and the areas of localized roughness exceeding an IRI of 200 in/mile. Use ride quality module report as follows:

	Fixed Interval	Continuous (Localized Roughness)
Base-length	500'	25'
Threshold	140"/Mile	200"/Mile

The ProVAL software is available for download at:
http://www.roadprofile.com.

(2) As part of the profiler software outputs and ProVAL reports, document the areas of localized roughness. Field-locate the areas of localized roughness prior to the engineer's assessment for corrective actions. Document the reasons for areas excluded and submit to the engineer.

(3) Within 5 business days after completing profiling of the pavement covered under this special provision, unless the engineer and contractor mutually agree to a different timeline, submit the electronic ProVAL project file containing the .ppf files for each profiler acceptance run data and Ride Quality Module Reports, in .pdf format using the department's Materials Reporting System (MRS) software available on the department's web site:
http://www.atwoodsystems.com/mrs

Notify the engineer when the Profiler Acceptance Run data and the Ride Quality Report have been submitted to the MRS system.

C.5 Corrective Actions

C.5.1 General

(1) Analyze the data from the PROVAL reports and make corrective action recommendations to the department. The department will independently assess whether a repair will help or hurt the long-term pavement performance before deciding on corrective action. Correct the ride as the engineer directs in writing.

C.5.2 Corrective Actions for Localized Roughness

(1) Apply localized roughness requirements to all pavements, including HMA III, PCC III, HMA IV, and PCC IV; except localized roughness requirements will not be applied to pavements within 25 feet of the following surfaces if they are not constructed under this contract: bridges, bridge approaches, or railroad crossings. The department may direct the contractor to make corrections to the pavement within the 25-foot exclusionary zones.

(2) The engineer will review each individual wheel track for areas of localized roughness. The engineer will assess areas of localized roughness within 5 business days of receiving notification that the reports were uploaded. The engineer will analyze the report documenting areas that exceed an IRI of 200 in/mile and do one of the following for each location:

1. Direct the contractor to correct the area to minimize the effect on the ride.
2. Leave the area of localized roughness in place with no pay reduction.
3. Except for HMA IV and PCC IV segments, assess a pay reduction as follows for each location in each wheel path:

Localized Roughness IRI (in/mile)	**Pay Reduction[1] (dollars)**
> 200	(Length in Feet) x (IRI –200)

[1] A maximum $250 pay reduction may be assessed for locations of localized roughness that are less than or equal to 25 feet long. Locations longer than 25 feet may be assessed a maximum pay reduction of $10 per foot.

(3) The engineer will not direct corrective action or assess a pay reduction for an area of localized roughness without independent identification of that area as determined by physically riding the pavement. For corrections, use only techniques the engineer approves.

(4) Re-profile corrected areas to verify that the IRI is less than 140 in/mile after correction. Submit a revised ProVAL ride quality module report to the reference documents section of the MRS for the corrected areas to validate the results.

C.5.3 Corrective Actions for Excessive IRI

(1) If an individual segment IRI exceeds 140 in/mile for HMA I, HMA II, and PCC II pavements after correction for localized roughness, the engineer may require the contractor to correct that segment. Correct the segment final surface as follows:

HMA I:	Correct to an IRI of 60 in/mile using whichever of the following methods as approved by the engineer: Mill and replace the full lane width of the riding surface excluding the paved shoulder. Continuous diamond grinding or fine-tooth milling the full lane width, if required, of the riding surface including adjustment of the paved shoulders.
HMA II:	Correct to an IRI of 85 in/mile using whichever of the following methods as approved by the engineer: Mill and replace the full lane width of the riding surface excluding the paved shoulder. Continuous diamond grinding or fine-tooth milling of the full lane width, if required, of the riding surface including adjustment of the paved shoulders
PCC II:	Correct to an IRI of 85 in/mile using whichever of the following methods as approved by the engineer: Continuous diamond grinding of the full lane width, if required, of the riding surface including adjustment of the paved shoulders. Conform to sections C.1 through C.4 of Concrete Pavement Continuous Diamond Grinding Special provision contained elsewhere in the contract. Remove and replace the full lane width of the riding surface.

(2) Re-profile corrected segments to verify that the final IRI meets the above correction limits and there are no areas of localized roughness. Enter a revised ProVAL ride quality module report for the corrected areas to the reference documents section of the MRS. Segments failing these criteria after correction are subject to the engineer's right to adjust pay for non-conforming work under standard spec 105.3.

C.6 Dispute Resolution

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate testing procedures, and perform additional testing.

(2) If the project personnel cannot resolve a dispute and the dispute affects payment or could result in incorporating nonconforming pavement, the department will use third party testing to resolve the dispute. The department's Quality Assurance Unit, or a mutually agreed on independent testing company, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in

error will pay service charges incurred for testing by an independent tester. The department may use third party tests to evaluate the quality of questionable pavement and determine the appropriate payment.

D Measurement

(1) The department will measure Incentive IRI Ride by the dollar, adjusted as specified in E.2.

E Payment

E.1 Payment for Profiling

(1) Costs for furnishing and operating the profiler, documenting profile results, and correcting the final pavement surface are incidental to the contract. The department will pay separately for engineer-directed corrective action performed within the 25-foot exclusionary zones under C.5.2 as extra work.

E.2 Pay Adjustment

(1) The department will pay incentive for ride under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
440.4410.S	Incentive IRI Ride	DOL

(2) Incentive payment is not limited, either up or down, to the amount the schedule of items shows.

(3) The department will administer disincentives for ride under the Disincentive IRI Ride administrative item.

(4) The department will not assess disincentive on HMA III or PCC III segments. Incentive pay for HMA III and PCC III segments will be according to the requirements for the category of the adjoining segments.

(5) The department will adjust pay for each segment based on the initial IRI for that segment. If corrective action is required, the department will base disincentives on the IRI after correction for pavement meeting the following conditions:

All Pavement:	The corrective work is performed in a contiguous, full lane width section 500 feet long, or a length as agreed with the engineer.
HMA Pavements:	The corrective work is a mill and inlay or full depth replacement and the inlay or replacement layer thickness conforms to standard spec 460.3.2.
Concrete Pavements:	The corrective work is a full depth replacement and conforms to standard spec 415.

(6) The department will adjust pay for 500-foot long standard segments nominally one wheel path wide using equation “QMP 1.04” as follows:

HMA I	
Initial IRI (inches/mile)	**Pay Adjustment[1] (dollars per standard segment)**
< 30	250
≥ 30 to <35	1750 – (50 x IRI)
≥ 35 to < 60	0
≥ 60 to < 75	1000 – (50/3 x IRI)
≥ 75	-250

HMA II and PCC II	
Initial IRI (inches/mile)	**Pay Adjustment[1] [2] (dollars per standard segment)**
< 50	250
≥ 50 to < 55	2750 – (50 x IRI)
≥ 55 to < 85	0
≥ 85 to < 100	(4250/3) – (50/3 x IRI)
≥ 100	-250

HMA IV and PCC IV	
Initial IRI (inches/mile)	**Pay Adjustment[1] [2] (dollars per standard segment)**
< 35	250
≥ 35 to < 45	1125-(25xIRI)
≥ 45	0

[1] If 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 (20130615)

21. Fence Safety, Item 616.0700.S.

A Description

This special provision describes furnishing and installing a plastic fence at locations shown on the plans and as hereinafter provided.

B Materials
Furnish notched conventional metal "T" or "U" shaped fence posts.

Furnish fence fabric meeting the following requirements.

Color:	International orange (UV stabilized)
Roll Height:	4 feet
Mesh Opening:	1 inch min to 3 inch max
Resin/Construction:	High density polyethylene mesh
Service Temperature:	-60° F to 200° (ASTM D648)
Tensile Yield:	Avg. 2000 lb per 4 ft. width (ASTM D638)
Ultimate Tensile Strength:	Avg. 3000 lb per 4 ft. width (ASTM D638)
Elongation at Break (%):	Greater than 100% (ASTM D638)
Chemical Resistance:	Inert to most chemicals and acids

C Construction
Drive posts into the ground 12 to 18 inches. Space posts at 7 feet.

Use a minimum of three wire ties to secure the fence at each post. Weave tension wire through the top row of strands to provide a top stringer that prevents sagging.

Overlap two rolls at a post and secure with wire ties.

D Measurement
The department will measure Fence Safety by the linear foot along the base of the fence, center-to-center of posts, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
616.0700.S	Fence Safety	LF

Payment is full compensation for furnishing and installing fence and posts; maintaining the fence and posts in satisfactory condition; and for removing and disposing of fence and posts at project completion.
616-030 (20070510)

22. Pavement Marking Grooved Wet Reflective Tape 4-Inch, Item 646.0881.S; 8-Inch, Item 646.0883.S.

A Description
This special provision describes furnishing, grooving and installing preformed wet reflective pavement marking tape for grooved applications as shown on the plans, according to standard spec 646, and as hereinafter provided.

B Materials

Furnish grooved wet reflective pavement marking tape and adhesive material per manufacturer's recommendations, if required, from the department's approved products list.

Furnish a copy of the manufacturer's recommendations to the engineer before preparing the pavement marking grooves.

C Construction

C.1 General

For quality assurance, provide the engineer and the region's Marking Section evidence of manufacturer training in the proper placement and installation of pavement marking tape.

Plane the grooved lines according to details in the plan and per manufacturer's recommendations. Use grooving equipment with a free-floating, independent cutting head. Plane a minimum number of passes to create a grooved surface per manufacturer's recommendations.

C.2 Groove Depth

Cut the groove to a depth of 120 mils ± 10 mils from the pavement surface or, if tined, from the high point of the tined surface. To measure the depth, the contractor may use a depth plate placed in the groove and a straightedge placed across the plate and groove, or the contractor may use a straightedge placed perpendicular to the groove. The department may periodically check groove depths.

C.3 Groove Width – Longitudinal Markings

Cut the groove one-inch wider than the width of the tape.

C.4 Groove Position

Position the groove edge according to plan details. Groove a minimum of 4 inches, but not greater than, 12 inches from both ends of the tape segment. Achieve straight alignment with the grooving equipment.

C.5 Groove Cleaning

C.5.1 Concrete

Cooling the cutting head with water may be necessary for some applications and equipment. If cooling water is necessary, flush the groove immediately with high-pressure water after cutting to remove any build-up of cement dust and water slurry. If this is not done, the slurry may harden in the groove.

If water is used in the grooving process, allow the groove to dry a minimum of 24 hours after groove cleaning, and prior to pavement marking application. The groove surface shall be clean and dry before applying the adhesive, and pavement marking tape. Use a high-pressure air blower with at least 185 ft^3/min air flow and 120 psi air pressure to clean

the groove; use of the air blower does not decrease the amount of time required for the groove to dry.

C.5.2 New Asphalt
Groove pavement 10 or more days after paving.

Use a high-pressure air blower with at least 185 ft^3/min air flow and 120 psi air pressure to clean the groove.

C.5.3 Existing Asphalt
Check for structural integrity in supporting grooving operations. If the structural integrity of the asphalt pavement is inadequate to support grooving operations, immediately notify the engineer.

Use a high-pressure air blower with at least 185 ft^3/min air flow and 120 psi air pressure to clean the groove.

C.6 Tape Application
Apply the wet reflective pavement marking tape when both the air and surface temperature are 40 degrees F and rising.

Apply tape in the groove as per manufacturer's recommendations. If manufacturer's recommendations require surface preparation adhesive

- 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 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 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
646.0881.S	Pavement Marking Grooved Wet Reflective Tape 4-Inch	LF
646.0883.S	Pavement Marking Grooved Wet Reflective Tape 8-Inch	LF

Payment is full compensation for cleaning and preparing the pavement surface; furnishing and installing the material; and for removing temporary pavement marking, if necessary.

23. Concrete Bases Type 5, Item 654.0105.

Supplement standard details drawings with the following:

Install anchor bolts with bolt circle, size and projection in concrete base as indicated on the plans and as required by the manufacturer of the furnished poles.

This modifies a standard item.

24. Concrete Control Cabinet Bases, Type 9 Special, Item 654.0217.

Utilize the standard specifications with the following addition:

Extend the concrete control cabinet pad for a battery back-up unit that is mounted on the side of the cabinet by 1' x 3' x 7" for the unit and 2' x 3' x 4" for a maintenance platform.

25. Electrical Service Meter Breaker Pedestal, Intersection of East Avenue and Sunset Drive, Item 656.0200.01.

Append standard spec 656.3.4 with the following:

The contractor will be responsible for electrical service installation or relocation requests. The City of Waukesha will be responsible for any charges from We Energies.

Electrical utility company service installation or relocation 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 electrical utility company can install the service lateral. Finish grade the service trench, replace topsoil that is lost or contaminated with other materials.

Append standard spec 656.5(3) with the following:

Payment is full compensation for grading the service trench and replacing topsoil; and for fertilizing, seeding, and mulching to restore the disturbed area of the service trench if necessary.

26. Traffic Signal Faces, 3-12 Inch Vertical, Item 658.0110, and 4-12 Inch Vertical, Item 658.0115.

Append standard spec 658.2.2 with the following:

All Light Emitting Diode (LED) traffic signal modules shall meet the Final Approved Version of the LED Circular Signal Supplement Purchase Specification produced by ITE. The manufacturer shall provide the minimum warranty as stated in the ITE Specifications. If the LED fails to function as intended due to workmanship or material defects the LED shall be replaced or repaired within the first 60 months from delivery. Also, if the LED signal modules exhibit luminous intensities less than the minimum values specified within the first 36 months the LED shall be replaced or repaired.

All signal head assemblies shall be equipped with LED, cutaway visors (or tunnel visors, is so specified in the plans) and backplates. The visor and backplate shall be a dull black. Signal head housings shall be yellow.

Vehicular signal indications shall be 12-inch LED modules as indicated on material list. All faces shall give an appearance of an incandescent lamp. The signal face shall be an 18 count Dialight DuraLED signal or approved equal.

27. Temporary Traffic Signal for Intersections, Sunset Dr. and S. East Ave., Item 661.0200.01.

Append standard spec 661.2.1 with the following:

The contractor shall furnish all temporary traffic signal equipment as shown on the plan. The signal controller shall be capable of operating with a video camera detection system. All wood poles shall be plumb and level. All engineering requested timing changes shall be coordinated with the City of Waukesha Engineering Division – Traffic, Mike Grulke; (262) 524-3590; 130 Delafield St., Waukesha, WI; mgrulke@ci.waukesha.wi.us

Replace standard spec 661.2.1 (3) with the following:

Contractor shall use existing underground electric service and meter breaker pedestal for the operation of the Temporary Traffic Signal. The contractor will be responsible for arranging any additional service connections to the temporary signals. The department will pay for all energy costs for the operation of the Temporary Traffic Signals.

Contractor shall contact the local electrical utility at least four days prior to making the switch from the existing Permanent Traffic Signal to the Temporary Traffic Signal. The contractor shall contact the local electrical utility at least four days prior to making the switch from the Temporary Traffic Signal to the new Permanent Traffic Signal.

Append standard spec 661.3.1.4 with the following:

(1) Arrange for monthly 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 24-hours 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 video detection zones as the plans show. Video detection zones shall be checked on a weekly basis to ensure that they are working and/or are aimed properly. Periodic adjustment of the video detection zones may be required.

Replace standard spec 661.5 with the following:

(1) The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
661.0200.01	Temporary Traffic Signals for Intersections, W. Sunset Dr. and S. East Ave.	LS

(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.

28. Concrete Bases Type 10, Contractor Supplied Anchor Bolts and Anchor Rod Template, Item SPV.0060.01.

A Description

This special provision describes constructing concrete bases, including the use of contractor supplied anchor bolts and anchor rod templates.

B Materials

B.1 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 of the standard specification. 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.

B.2 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.

B.3 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

C.1 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.

C.2 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.

C.3 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 10, 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.0060.01	Concrete Bases Type 10, Contractor Supplied Anchor Bolts and Anchor Rod Template	Each

Payment for the Concrete Bases Type 10, 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 installing electrical conduit, electrical ground, templates; for placing and curing concrete; for backfilling; and for disposing of surplus material and restoring the site.

29. Poles Type 9, Item SPV.0060.02, and Poles Type 10, Item SPV.0060.03.

A Description
Work under this item consists of furnishing and installing monotube poles.

B Materials
B.1 Monotube Poles
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.

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.

Include anchor bolts meeting AASHTO standards applicable to the pole type and loading. Provide a mounting template that ensures correct installation of anchor bots in foundation.

C Construction

C.1 General

Install contractor furnished poles as specified in the plan details and using appropriate contractor-furnished anchor bolts and hardware. Use the appropriate anchor bolt template to ensure correct installation. 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 appears vertical.

C.2 Poles

(1) Clean each pole before installation.

(2) Secure type 9 and 10 structures to anchor assemblies conforming to the procedures enumerated in UPDATED department form DT2321 (4/2014). Complete department form DT2321 for each structure. Indicate the parties responsible for the installation and submit the form to the engineer for inclusion in the permanent project record.

(3) After completing erection using normal pole shaft raking techniques, ensure that the centerline of the shaft is vertical.

D Measurement

The department will measure Poles Type 9 or 10 as each individual pole, 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.0060.02	Poles Type 9	Each
SPV.0060.03	Poles Type 10	Each

Payment is full compensation for providing and installing poles including all hardware and fittings necessary to install the poles.

30. Monotube Arms 25-FT, Item SPV.0060.04, and 30-FT, Item SPV.0060.05.

A Description

Work under this item consists of furnishing and installing monotube arms.

B Materials

B.1 Monotube Arms

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, luminaires, 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 15 to 30-foot arms.

For structures requiring a fatigue analysis, use 45 mph (72 km/h) for truck-induced gusts.

Base the designs on the completed maximum loading configuration the standard detail drawing shows. Along with the materials list, submit a certificate of compliance certifying that the arms as furnished, conform to the above structural performance requirements.

Ensure that the certificate of compliance is on the manufacturer's letterhead, signed by an authorized company officer, and notarized. Send a copy of the certificate and a copy of the monotube arm shop drawings to the department electrical engineer.

Furnish monotube arms conforming to the following:

- Consist of zinc coated steel round or oval members.
- Have a mounting device welded to the pole end of the monotube arm that allows the attachment of the arm to a pole as the plans show.
- Have stiffeners or gussets if required between the arm tube and the arm mounting device to provide adequate strength to resist side loads.
- Have a clean, uniform natural finish. No paint or other corrosion preventive maintenance coating is required.

After welding and before zinc coating, clean exterior surfaces of each arm free of all loose rust and mill scale, dirt, oil or grease, and other foreign substances.

Apply zinc coating as specified for sign bridge components 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 manufacturing is complete, clean the exterior surfaces of each pole free of all loose scale, dirt, oil, or grease, and other foreign substances.

B.2 High-Stength Bolt/Nut/Washer Assemblies

(1) Furnish zinc-coated bolt/nut/washer assemblies consisting of high-strength type 1 galvanized bolts conforming to ASTM A325, type 1 galvanized grade DH or DH3 nuts conforming to ASTM A563, and galvanized flat washers conforming to ASTM F436. Also conform to the following:

- Furnish 2 flat washers with each bolt/nut/washer assembly. Use the size, number, type, and configuration of hardened flat washers the DTI manufacturer recommends for bolt diameters greater than 1 1/8 inches.
- Ensure that the supplier pre-assembles each bolt/nut/washer assembly before shipping.
- Ensure that all bolt/nut/washer assemblies of a given size come from the same rotational-capacity lot, are shipped in sealed and labeled containers, and are accompanied by a certified report of test or analysis giving the results of the supplier's rotational-capacity testing. No field rotational capacity testing is required.
- Furnish 3 or more additional bolt/nut/washer assemblies of each size for pre-installation testing.
- Submit 2 or more additional bolts and 3 or more additional nuts and washers of each size for department mechanical testing. The contractor need not submit components from a lot and heat the department previously approved.

(2) Hot-dip zinc-coat according to ASTM A153 supplemented by ASTM F2329 or mechanically zinc-coat according to ASTM B695, class 50. Remove excess hot-dip zinc coating on threads by centrifuging or air blasting immediately after withdrawal. Do not flame-chase. Ensure that the same zinc-coating process is used for bolts and nuts within a bolt/nut/washer assembly.

(3) Ensure that the manufacturer provides identification marks for high-strength bolts and nuts according to ASTM A325.

(4) Ensure that supplier-performed rotational capacity testing conforms to Report No. FHWA SA-91-031 "High-Strength Bolts for Bridges". Furnish 2 copies of a certified report of test or analysis indicating the results of required manufacturer/supplier tests.

B.2.1 High-Stength Bolts

(1) Provide 1-inch diameter by 6-inch long bolts for type 9 and 10 poles. Provide 1 ½-inch diameter by 7 1/2-inch long bolts for type 12 and 13 poles. The full thread may extend into the grip not more than 5/8 inch.

(2) Ensure that bolts conform to the following:

HARDNESS NUMBER		
BOLT SIZE	BRINELL min / max	ROCKWELL C min / max
1/2 through 1-inch	253 / 319	25 / 33
greater than 1-inch	223 / 286	19 / 30

B.2.2 High-Stength Nuts

(1) Ensure that the supplier lubricates zinc coated nuts with a lubricant containing dye that contrasts with the color of the zinc coating according to ASTM A563 supplementary requirements S1 and S2.

B.2.3 High-Stength Flat Washers

(1) If clearance is necessary, the contractor may clip washers on one side to a point not closer than 7/8 of the bolt diameter from center of washer.

B.3 Direct Tension Indicating Washers

(1) Furnish zinc-coated direct tension indicating (DTI) washers conforming to ASTM F959 type 325. Ensure that DTIs have identifying marks applied by the manufacturer. Provide the engineer with 2 copies of the DTI manufacturer's instructions showing acceptable installation configurations. Provide 3 or more additional DTI washers as required for pre-installation testing. Also provide the engineer with at least two 0.005-inch metal feeler gauges.

B.4 Testing and Reporting

(1) Ensure that supplier-performed rotational capacity testing conforms to Report No. FHWA SA-91-031 "High-Strength Bolts for Bridges". Furnish 2 copies of a certified report of test or analysis indicating the results of required manufacturer/supplier tests.

C Construction

C.1 General

Install contractor furnished arms as specified in the plan details and using appropriate contractor-furnished bolts and hardware required to complete the installation as the plans show.

C.2 Arms

C.2.1 General

(1) Install monotube and steel luminaire arms to supporting structures at the height and alignment the plans show.

C.2.1 High-Strength Bolts for Monotube Arms

C.2.1.1 Handling and Storage

(1) Store bolts/nut/washer assemblies and DTI washers in closed containers in a protected shelter to protect them from dirt and moisture until used. Maintain fastener system components as nearly as possible in the as-manufactured condition until installed. Remove from storage only as needed and promptly return unused components to storage.

C.2.1.2 Pre-installation Testing

(1) Notify the engineer before performing the required field pre-installation testing.

(2) Lubricate high-strength bolt threads with a wax-based lubricant before testing. Test bolt/nut/washer assemblies with the DTI washer between the bolt head and a flat washer with the DTI protrusions against the bolt head.

(3) Perform pre-installation testing in the field conforming to the procedures enumerated in department form DT2322 (4/2014 – Attached at rear of this document.) for each bolt/nut/washer/DTI size installed. Provide the engineer with the test results by submitting 2 copies of department form DT2322.

C.2.1.3 Bolt Installation

(1) Do not begin bolt installation without the engineer's approval.

(2) Lubricate high-strength bolt threads with a wax-based lubricant before installation.

(3) Tension high-strength bolts using direct tension indicating (DTI) washers. Install bolt/nut/washer assemblies with DTI washers in the same configuration used for pre-installation testing.

(4) Tighten conforming to department form DT2322 to provide the correct installation tension. During the operation, ensure no rotation of the part not turned by the wrench. Snug systematically from the most rigid part of the connection to the free edges. Repeat until the full connection is in a snug condition and the faying surfaces are in firm contact. Systematically tighten the connection required number of refusals is achieved. If the gaps on the DTI washer are completely closed, discontinue tightening.

C.2.1.3 Contractor QC Testing

(1) Notify the engineer before performing the required pre-installation testing. Do not begin bolt installation without the engineer's approval. The engineer may verify bolt installation by periodically testing with a feeler gauge.

(2) Use a 0.005-inch metal feeler gauge to perform QC testing for each completed bolted connection in the presence of the engineer. Test a minimum of 10 percent of the bolts, but not less than 2 bolts, selected randomly in each connection.

(3) If the number of refusals required on department form DT2322 is achieved, the engineer will accept the connection as properly tightened. If for any bolt the required number of refusals is not achieved, tighten all bolts in the connection.

D Measurement

The department will measure Monotube Arms (Length) as each individual arm, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.04	Monotube Arms 25-FT	Each
SPV.0060.05	Monotube Arms 30-FT	Each

Payment is full compensation for providing and installing all materials, including all hardware, fittings, mounting devices, shims, and attachments necessary to completely install the arms.

31. Luminaire Arms Steel 15-FT, Item SPV.0060.06.

A Description

Work under this item consists of furnishing and installing steel luminaire arms.

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, luminaires, 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 if mounted on top of a Type 10 pole and category II criteria if mounted on top of a Type 13 pole.

For structures requiring a fatigue analysis, use 45 mph (72 km/h) for truck-induced gusts.

Base the designs on the completed maximum loading configuration the standard detail drawing shows. Along with the materials list, submit a certificate of compliance certifying that the arms as furnished conform to the above structural performance requirements. Ensure that the certificate of compliance is on the manufacturer's letterhead, signed by an authorized company officer, and notarized. Send a copy of the certificate and a copy of the luminaire arm shop drawings to the department electrical engineer.

Furnish luminaire arms conforming to the following:

1. Consist of zinc coated steel round or oval members.

2. Have a mounting device welded to the pole end of the luminaire arm that allows the attachment of the arm to a pole as the plans show.

3. Have stiffeners or gussets if required between the arm tube and the arm mounting device to provide adequate strength to resist side loads.

4. Have a clean, uniform natural finish. No paint or other corrosion preventive maintenance coating is required.

After welding and before zinc coating, clean exterior surfaces of each arm free of all loose rust and mill scale, dirt, oil or grease, and other foreign substances.

Apply zinc coating as specified for sign bridge components 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 manufacturing is complete, clean the exterior surfaces of each pole free of all loose scale, dirt, oil, or grease, and other foreign substances.

C (Vacant)

D Measurement

The department will measure Luminaire Arms Steel 15-Foot by each individual arm, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.06	Luminaire Arms Steel 15-FT	Each

Payment is full compensation for providing and installing all materials, including all hardware, fittings, mounting clamps, shims if required and attachments necessary to completely install arms.

32. Traffic Signal Controller and Cabinet 8-Phase Fully Actuated, Item SPV.0060.08.

A. General. This work shall consist of furnishing and installing traffic signal controller(s) and cabinet(s) as shown on the plans and as hereinafter provided.

The controller shall be Eagle Signal Control EPAC M52 Series and shall provide a functional Ethernet port.

The traffic controllers and cabinets at the intersection shall include any necessary provisions to accommodate fiber optic interconnect.

A ruggedized, outdoor battery powered back-up uninterruptible power supply system (UPS) shall be installed to the traffic signal control cabinet. This system shall provide a seamless transition to backup power, offer long run times, are designed to withstand extreme temperatures and environments where heat, cold, dust and debris can affect equipment, and are able to withstand vibrations caused by cars, trains, trucks and buses that can interfere with system operations. Battery heater mats shall be included.

The contractor shall submit two copies of the following to the City of Waukesha: Detection wiring diagrams, cable and routing diagrams, pole to pull box wiring diagrams, conductor layout standards and the associated head arrangements and other pertinent details.

Equipment will be examined and tests will be performed to insure that proper and sufficient equipment is furnished as is required to complete the signal plan operation and sequence in compliance with the intent of the contract specifications.

All testing and equipment examination shall be in the presence of the contractor's representative furnishing the equipment. The contractor's representative will be notified of any needed modifications or corrections to be accomplished by the contractor.

The cabinet shall not be installed until it is in proper working order and approved by City of Waukesha personnel or their designee.

After the contractor has mounted the cabinet on the cabinet foundation, he shall connect all the field wiring inside the controller cabinet and test the signal circuits for correct operation. The contractor shall connect and test the signal circuits outside the controller cabinet as directed by the engineer. Connecting and testing signal circuits shall be considered part of this item of work.

The controller shall be a fully traffic actuated, solid state, digital microprocessor controller, capable of providing the number and sequence of phases, overlaps, and any special logic as described herein and shown on the accompanying plan.

The controller shall be fully programmed and shall be mounted in a control cabinet to operate as a complete and functioning intersection traffic signal control system. The equipment items included shall be, but not necessarily limited to, cabinet, microprocessor controller, monitor, detector amplifiers, power supply, power distribution panel, interior cabinet wiring, and other associated electrical and electronic equipment interior to the control cabinet that is necessary to provide the type of operation described in these specifications.

Dual ring, programmable for both single and dual entry concurrent timing, eight-phase frame or equivalent shall be provided. Volume density and pedestrian timing shall be provided for all phases. MUTCD flashing capability shall be provided. All controls shall be in accordance with the accompanying plans and with NEMA Standards Publication No. TS2-2003.

The intersection controller unit shall be capable of up to 8-phase operation plus four programmable overlaps regardless of whether preemption, coordination or the special programming is used. The intersection cabinet shall be wired for a minimum of twelve and include twelve 3 circuit load switches.

B. Electrical and Operational Aspects.

(1) **Buffering**. All logic circuit inputs shall be internally buffered to withstand transients and noise, such as might result from normal usage, without damage to any mechanism components.

(2) **Timing Features**. All controller timing parameters shall be fully programmable from the front panel using switches and/or keyboard inputs, and memory storage features shall be nonvolatile under power off conditions for at least 30 days. The locking, nonlocking detection mode and recall switches shall also be accessible on the front panel.

(3) **Minimum Green Timing**. The passage timer shall time concurrently with the minimum green timer, so that the duration of the minimum green time is directly adjustable and is independent of the passage time setting.

(4) **Dual Ring Timing**. In the dual ring application, no more than two phases shall be permitted to time concurrently, and no more than one phase per ring. The controller shall provide barrier protection against concurrent timing of two conflicting phases; no phases assigned to one side of the barrier shall be permitted to time concurrently, if a conflict will occur. The controller shall service calls on a single entry basis, and both rings shall cross the barrier simultaneously in accordance with the following logic: (a) Phases timing concurrently shall terminate simultaneously if both have a gap out due to excessive time between actuations. (b) Phases timing concurrently shall terminate simultaneously if both have a maximum time out. (d) In the event that one phase has not achieved a gap out or

maximum time out, the other gapped out phase shall be Permitted to leave the gapped out condition and retime an extension when an actuation is received.

(5) **Manual (Police) Control**. If manual control is used, actuation of the manual control shall permit manual advance of the Walk, Pedestrian Clearance, and Green interval terminations only. Manual termination of Yellow or All Red clearance intervals shall not be permitted.

(6) **Red Revert**. An adjustable red revert control shall be provided to assure adequate red display when recycling a phase during call-away or red rest mode operation. A call for service to a different phase shall be preceded by an all-red clearance interval, as programmed.

(7) **Coordination**. The controller shall be capable of operation in progressive coordination systems and mutual coordination and shall contain, but not be limited to, the following external inputs, with all functions brought out (continued next page):

- Vehicle/Pedestrian Detectors per phase
- Phase Omit per phase
- Omit Red Clearance per ring
- Maximum II per ring
- Stop Timing per ring
- Select Minimum Recall per controller
- Semi-Mode per controller
- Pedestrian Omit per phase
- Hold per phase
- Internal Maximum Inhibit per ring
- Red rest per ring
- Force-Off per ring
- Manual Control per controller
- External Start per controller

(8) **Minimum Safe Timings Control**. Controllers shall not accept any operator input or stored timing parameters that would result in intervals shorter than the following: yellow clearance - 3.0 seconds, minimum walk - 4.0 seconds, minimum pedestrian clearance - 6.0 seconds. At the beginning of each of the above intervals, the controller shall check the previously stored data against these minimums. If an operator attempts to load an incorrect timing parameter, the controller unit shall output a unique error code on the front panel display. As an alternate to minimum timing control, a coded keyboard entry security feature may be provided.

(9) **Indicator Lights and Switches**. Indicator lights shall be provided to show the status of each signal phase on. Indicator lights shall also be used to show interval status, phase termination information, and presence of vehicular and pedestrian calls for each phase. An indicator light shall also be provided to show the status of the backup battery charging circuit.

The controller shall have an on off switch and fuse for AC power.

(10) **Data Display**. The data panel shall be a removable hand held unit. The panel shall contain a display panel consisting of LED display characters. The face of the display shall be scratch, chemical, and solvent resistant. In the case of writing data or parameters

into the controller there shall be a visual indication that the data has been accepted. The number of characters shall be adequate to read or write all data and parameters in decimal format together with a data descriptor in either alpha numeric format, or thumbwheel switch display. A data key shall be provided.

(11) **Diagnostic Program**. A diagnostic program shall be prepared by the manufacturer of the controller unit which will demonstrate the proper operation of all the inputs, outputs, controls and indicators in the controller, and shall have visual conformation on the front panel. The diagnostic program shall be either resident in the controller or furnished as a separate plug in module. A flow chart and listing of the diagnostic routine shall be furnished with the controller unit.

(12) **Preemption**. (1) **General**. These specifications detail a preemptor program for use with 2 through 8 phase actuated controller.

a) The preemptor shall be capable of being adaptable to meet the various types of applications such as railroad, fire station, and bridge preempts.

The preemptor shall be internal to the controller and shall not alter controller capability or interchangeability under normal operation. The preemptor shall be completely programmable by the user.

b) **Preempt Program**.

1**. Preempt Registration**. The preempt call input shall initialize preempt registration and start preempt sequence unless a priority call input is activated which would treat the current controller preemptions state as normal operation and reinitiate call registration.

2. **Preempt Delay**. As soon as the preempt call is registered the preempt delay will begin timing unless preempt delay is set zero or preempt delay omit was active during preempt call registration. Delay shall be programmable from 0 to 255 seconds minimum.

3. As soon as preempt delay is timed out, current running phases not next to be common in preempt sequence are cleared. If the running phases are green and must be cleared, special programmable values of minimum green, walk and pedestrian intervals will time normal times. Concurrently a special preempt clearance is generated. This clearance is designed for advance track signals and any overlaps that may be green and require yellow clearance.

4. **Entry Clearance Phase(s) Select**. Two sequential phases or phase pairs shall be available to be run as programmable fixed time intervals as an entry sequence. Two entry options shall be available, each programmable. The entry sequence shall be capable of being omitted entirely.

5. **Dwell Sequence**. After the entry sequence, the preemptor shall enter the dwell sequence. During the dwell sequence the controller shall cycle between selected phases on a pre-timed or actuated basis. Pedestrian phasing may be normal or omitted entirely. When the

dwell sequence is entered, a preempt dwell output shall be generated. The preemptor shall remain in dwell for the length of the dwell extension timer which shall be capable of being held in reset by the preempt call input. Dwell extension shall be omittable by setting the timer to zero.

6. **Exit Sequence**. After leaving dwell, the controller shall enter one or two programmed exit phases(s) or phase pairs sequences. The sequence will time programmed minimum green and place a vehicle call on all phases not omitted. After timing exit phase minimum green the controller shall time and sequence normally.

(13). **Time Base Coordination**. These specifications detail a Time Base Coordinator program for use with 2 through 8 phase actuated controller.

The units shall allow traffic control equipment to be coordinated without requiring the use of interconnection cables. The units shall coordinate traffic control equipment based on signals from a precise time base which will allow output control signals to be changed at the proper pre-programmed time to achieve the coordinated operation of an intersection with other intersections or the desired operation of an isolated intersection. The coordinators may also used a programmer for a master intersection controller which in turn is interconnected with secondary intersection controllers. The units shall also be capable of providing a command for MUTCD flash, and shall allow a full year program to be initiated and carried out without the necessity of field adjustment for anticipated special events, etc.

The time base coordinator shall be internal to the controller and shall not alter controller capability or interchangeability under normal operation. The time base coordinator shall be completely programmable by the user.

C. **Monitoring**. A conflict monitor meeting the following requirements shall be provided:

(1) **General** Each cabinet assembly shall be wired to operate with one Malfunction Management Unit (MMU). The MMU shall be a Type 16.

This specification sets forth the minimum requirements for a shelf-mountable, sixteen channel, solid-state Malfunction Management Unit (MMU). The MMU shall meet, as a minimum, all applicable sections of the NEMA Standards Publication No. TS2-2003. Where differences occur, this specification shall govern.

(2) **Monitoring Functions** The following monitoring functions shall be provided in addition to those required by the NEMA Standard Section 4.

a) **Dual Indication Monitor** Dual Indication monitoring shall detect simultaneous input combinations of active Green (Walk), Yellow, or Red (Dont Walk) field signal inputs on the same channel. In Type 12 mode this monitoring function detects simultaneous input combinations of active Green and Yellow, Green and Red, Yellow and Red, Walk and Yellow, or Walk and Red field signal inputs on the same channel.

When voltages on two inputs of a vehicle channel are sensed as active for more than 450 msec, the MMU shall enter the fault mode, transfer the OUTPUT relay contacts to the Fault position, and indicate the DUAL INDICATION fault. The MMU shall remain in the fault mode until the unit is reset by the RESET button or the EXTERNAL RESET input. When voltages on two inputs of a vehicle channel are sensed as active for less than 200 msec, the MMU shall not transfer the OUTPUT relay contacts to the Fault position.

When operating with Port 1 communications enabled, Bit #68 (Spare Bit #2) of the Type #129 response frame shall be set to indicate a Dual Indication fault has been detected.

Dual Indication Monitoring shall be disabled when the RED ENABLE input is not active.

i) **Dual Indication Programming** Programming shall be provided to enable the Dual Indication monitoring function for the Green and Red, Green and Yellow, and Yellow and Red combinations for each individual channel. In the Type 12 mode, the Walk inputs shall be logically OR'ed with the Green inputs for purposes of Dual Indication programming.

b) **Field Check Monitoring** The Field Check Monitor function shall provide two modes of operation, Field Check Fault and Field Check Status.

Field Check Monitoring shall be disabled when the RED ENABLE input is not active.

i) **Field Check Monitor** In the Field Check Fault mode, when the field signal input states sensed by the MMU do not correspond with the data provided by the Controller Unit in the Type #0 message for 10 consecutive messages, the MMU shall enter the fault mode, transfer the OUTPUT relay contacts to the Fault position, and indicate the FIELD CHECK FAIL fault. Bit #67 (Spare Bit #1) of the Type #129 response frame shall be set to indicate a Field Check fault has been detected. The MMU shall remain in the fault mode until the unit is reset by the RESET button or the EXTERNAL RESET input.

ii) **Field Check Status** The Field Check Status mode shall work in combination with the other fault monitoring functions of the MMU. When a Conflict, Red Fail, Clearance Fail, or Dual Indication Fail triggers the MMU, the Channel Status Display and Fault Status Display shall correspond to that detected fault. If Field Check errors were detected while the fault was being timed, the inputs on which the Field Check errors were detected shall be reported on the Channel Status display. Bit #67 (Spare Bit #1) of the Type #129 response frame shall also be set to indicate Field Check errors have been detected.

iii) **Field Check Programming** Programming shall be provided to enable the Field Check monitoring function for each Green, Yellow, and Red input individually. Programming shall be provided to enable the Field Check monitoring function for channel 2, 4, 6, and 8 Walk input individually when operating in the Type 12 with SDLC mode.

c) **Recurrent Pulse Monitoring** The Signal Monitor shall detect Conflict, Red Fail, and Dual Indication faults that result from intermittent or flickering field signal inputs. These recurring pulses shall result in a latching fault with the RECURRENT PULSE STATUS indicated along with the resulting Conflict, Red Fail, or Dual Indication status. An option shall be provided to disable the RP detect function for testing purposes.

When operating with Port 1 communications enabled, Bit #69 (Spare Bit #3) of the Type #129 response frame shall be set to indicate a Recurrent Pulse status has been detected.

d) **External Watchdog Monitoring** The MMU shall provide the capability to monitor an optional external logic level output from a Controller Unit or other external cabinet circuitry. If the MMU does not receive a change in state on the EXTERNAL WATCHDOG input for 1500 msec (±100 msec), the MMU shall enter the fault mode, transfer the OUTPUT relay contacts to the Fault position, and indicate the WATCHDOG fault. The MMU shall remain in the fault mode until the unit is reset by the RESET button or the EXTERNAL RESET input. An MMU Power Failure shall reset the WATCHDOG fault state of the monitor. The EXTERNAL WATCHDOG input shall be wired to connector MSB-S.

When operating with Port 1 communications enabled, Bit #70 (Spare Bit #4) of the Type #129 response frame shall be set to indicate an External Watchdog fault has been detected.

e) **Type Fault Monitor** The MMU shall verify at power-up that the Type 12 or Type 16 operating mode as determined by the TYPE SELECT input is consistent with the mode set by the last external reset.

Detection of a Type Fault shall place the MMU into the fault mode, transfer the OUTPUT relay contacts to the Fault position, and indicate the TYPE 12/16 fault. The MMU shall remain in the fault mode until the unit is reset by the RESET button or the EXTERNAL RESET input. An MMU Power Failure shall reset the Type Fault state of the monitor.

f) **Flashing Yellow Arrow PPLT Support** The MMU shall be designed to monitor an intersection with up to four approaches using the four section Flashing Yellow Arrow (FYA) movement outlined by the NCHRP Research Project 3-54 on Protected/Permissive signal displays with Flashing Yellow Arrows. Two cabinet configurations shall be supported for both the MMU Type 16 and Type 12 modes depending on the number of load switches provided and the capabilities of the Controller Unit. In both modes the MMU shall be designed to provide the same fault coverage for the FYA approaches as it does for

conventional protected left turn phases including Conflict, Red Fail, Dual Indication, and both Minimum Yellow and Minimum Yellow Plus Red Clearance monitoring.

(3) **Configuration Options**

a) **RYG ONLY Red Fail Option** The MMU shall provide the capability to exclude the Walk inputs from the Red Fail fault detection algorithm when operating in the Type 12 mode. When the option is selected, the absence of signals on the Green, Yellow, and Red field outputs of a channel will place the MMU unit into the fault mode, transfer the OUTPUT relay contacts to the Fault position, and indicate the RED FAIL fault.

b) **LED Signal Threshold Adjust** The MMU shall provide the capability to sense field inputs signals with the following thresholds:

Conflict, Dual Indication Low Threshold Signal Inputs (Green, Yellow, and Red)

No Detect	less than 15 Vrms
Detect	greater than 25 Vrms

Red Fail High Threshold Signal Inputs (Green, Yellow, and Red)

No Detect	less than 50 Vrms
Detect	greater than 70 Vrms

c) **CVM LOG Disable Option** The MMU shall provide a means to disable the logging of CVM fault events.

(4) **Display Functions** The following display functions shall be provided in addition to those required by the NEMA TS-2 Standard Section 4. A PC shall not be required to display the following parameters.

a) **Field Signal Voltages Display** A mode shall be provided to display the RMS voltage of each field signal input. If the MMU is not in the fault mode, the displayed voltage will be the currently applied RMS voltage. If the MMU is in the fault mode, the displayed voltage will be the applied RMS voltage at the time of the fault.

b) **Cabinet Control Signal Voltages Display** A mode shall be provided to display the RMS voltage of the AC Line and Red Enable, the frequency of the AC Line, and the ambient temperature measured at the MMU. If the MMU is not in the fault mode, the displayed values will be the currently applied values. If the MMU is in the fault mode, the displayed values will be the applied values at the time of the fault.

c) **Field Check Status Display** When the MMU is in the fault mode, a display screen for the front panel display shall be provided to identify all field signal inputs with Field Check status.

d) **Recurrent Pulse Status Display** When the MMU is in the fault mode, a display screen for the front panel display shall be provided to identify all field signal inputs with Recurrent Pulse status.

e) **Configuration Display** A display mode for the front panel display shall be provided that allows the setting and viewing of all MMU configuration parameters. The configuration parameters provided on the program card shall be viewable only. A PC shall not be required to completely program or view the MMU configuration parameters.

f) **Event Logs Display** A display mode for the front panel display shall be provided to review all details of the Previous Fail log, AC Line log, and the Monitor Reset log.

g) **Clock Set Display** A display mode for the front panel display shall be provided to view and set the time and date of the MMU real time clock.

(5) **Operating Modes** The MMU shall operate in both the Type 12 mode and Type 16 mode as required by the NEMA Standard.

a) **Help System** A context sensitive Help system shall be provided that is activated by a separate Help button. The Main Status display shall respond with text messages relevant to the position in the menu navigation level. When the MMU is in the fault mode the Help system shall respond with the Diagnostic mode described in 0.

b) **Setup Wizard** A built-in setup mode shall be provided that automatically configures the Dual Indication enable, Field Check enable, Red Fail enable, and Minimum Yellow Plus Red Clearance enable parameters from user input consisting only of channel assignment and class (vehicle, ped, pp-turn, etc) responses.

c) **Diagnostic Wizard** A built-in Diagnostic Wizard shall be provided that displays detailed diagnostic information regarding the fault being analyzed. This mode shall provide a concise view of the signal states involved in the fault, pinpoint faulty signal inputs, and provide guidance on how the technician should isolate the cause of the malfunction. The Diagnostic Wizard shall be automatically invoked when the MMU is in the fault mode and the HELP button is pressed. It shall also be automatically invoked when the MMU is in the Previous Fail (PF) event log display and the HELP button is pressed.

d) **TS-1 Type 12 With SDLC Mode** The MMU shall be capable of operating in the Type 12 mode with SDLC communications enabled on Port 1. The Channel Status display shall operate in the Type 12 configuration and provide the field check function for up to four pedestrian Walk inputs.

HARDWARE

(1) **Enclosure**

a) **Size** The MMU shall be compact so as to fit in limited cabinet space. It shall be possible to install on a shelf that is at least 7" deep. Overall dimensions, including mating connectors and harness, shall not exceed 10.5" x 4.5" x 11" (H x W x D).

b) **Material** The enclosure shall be constructed of sheet aluminum with a minimum thickness of 0.062", and shall be finished with an attractive and durable protective coating. Model, serial number, and program information shall be permanently displayed on the top surface.

(2) **Electronics**

a) **Microprocesor Monitor** A microprocessor shall be used for all timing and control functions. Continuing operation of the microprocessor shall be verified by an independent monitor circuit, which shall force the OUTPUT RELAY to the de-energized "fault" state and illuminate the DIAGNOSTIC indicator if a pulse is not received from the microprocessor within a defined period not to exceed 500 ms. Only an MMU Power Failure shall reset the DIAGNOSTIC fault state of the monitor.

b) **RMS Voltage Measurement** High speed sampling techniques shall be used to determine the true RMS value of the AC field inputs. Each AC input shall be sampled at least 32 times per line cycle. The RMS voltage measurement shall be insensitive to phase, frequency, and waveform distortion.

c) **Sockets** In the interest of reliability, no IC sockets shall be used.

d) **Battery** All user programmed configuration settings shall be stored in an electrically erasable programmable read-only memory (EEPROM). Designs using a battery to maintain configuration data shall not be acceptable. If a battery is used, it shall provide power only to the real time clock.

e) **Field Input Terminals** All 120 VAC field terminal inputs shall provide an input impedance of at least 150K ohms and be terminated with a discrete resistor having a power dissipation rating of 0.5 Watts or greater.

f) **Component Temperature Range** All electrical components used in the MMU except the front panel Status LCD shall be rated by the component manufacturer to operate over the full NEMA temperature range of -34oC to +74oC.

g) **Printed Circuit Boards** All printed circuit boards shall meet the requirements of the NEMA Standard plus the following requirements to enhance reliability:

i) All plated-through holes and exposed circuit traces shall be plated with solder.

ii) Both sides of the printed circuit board shall be covered with a solder mask material.

iii) The circuit reference designation for all components and the polarity of all capacitors and diodes shall be clearly marked adjacent to the component. Pin #1 for all integrated circuit packages shall be designated on both sides of all printed circuit boards.

iv) All printed circuit board assemblies shall be coated on both sides with a clear moisture-proof and fungus-proof sealant.

(3) **Front Panel and Connectors**

a) **MMU Status Display** four line by 20 character alpha-numeric LCD display shall be provided to report MMU status, time and date, menu navigation, etc. This display shall be separate from the full intersection channel status display.

b) **Full Intersection Channel Status Display** A separate Red, Yellow, and Green indicator shall be provided for the channel status LCD display for each channel to show full intersection status simultaneously. For Type 12 mode operation a separate Red, Yellow, Green and Walk indicator shall be provided for each channel to show full intersection status simultaneously. Individual icons shall also be provided to indicate channels involved in a fault.

c) **LED Display Indicators** The following LED display indicators shall be provided:

i) **Power Indicator** The green POWER indicator shall flash at a rate of 2Hz when the AC LINE voltage is below the drop-out level. It shall illuminate steadily when the AC LINE voltage returns above the restore level. It shall extinguish when the AC Line voltage is less than 75 Vrms.

ii) **Fault Indicator** The red FAULT indicator shall illuminate when the MMU is in the fault mode and the OUTPUT relay has transferred to the Fault position.

iii) **Port 1 Receive Indicator** The yellow RECEIVE indicator shall illuminate for a 40 msec pulse each time a Port 1 message is correctly received from the Controller Unit.

iv) **Port 1 Transmit Indicator** The yellow TRANSMIT indicator shall illuminate for a 40 msec pulse each time a Port 1 message is transmitted from the MMU.

v) **EIA-232 Receive Indicator** The yellow COMM indicator shall illuminate for a 40 msec pulse each time a message is correctly received on the EIA-232 port.

vi) **Diagnostic Indicator** The red DIAGNOSTIC indicator shall illuminate when the MMU has detected an internal diagnostic failure.

d) **Controls** All displays, controls, and connectors shall be mounted on the front panel of the MMU.

i) **Help Button** A momentary contact button shall be provided the initiates the context sensitive help system described in 0.

e) **MS Connectors** The MS connectors on the MMU shall have a metallic shell and be attached to the chassis internally. The connectors shall be mounted on the front of the unit in accordance with the following: Connector A shall intermate with a MS 3116 22-55 SZ, and Connector B shall intermate with a MS 3116 16-26 S.

In the interest of reliability and repair ability, printed circuit board mounted MS connectors shall not be acceptable. Internal MS harness wire shall be a minimum of AWG #22, 19 strands.

f) **EIA-232 Port** The EIA-232 port shall be electrically isolated from the MMU electronics using optical couplers and shall provide a minimum of 2500 Vrms isolation. The connector shall be an AMP 9721A or equivalent 9 pin metal shell D subminiature type with female contacts. Pin assignments shall be as shown in the following table:

PIN	FUNCTION
1	DCD*
2	TX DATA
3	RX DATA
4	DTR (Data Terminal Ready)
5	SIGNAL GROUND
6	DSR*
7	DSR*
8	CTS*
9	NC

*Jumper options shall be provided to allow the connection of Pin #4 to be made with Pin #7, and the connection of Pin #8 to be made with Pin #1 and or Pin #6.

(4) **Monitor Configuration Parameters** All Nema standard configuration parameters shall be provided by a program card meeting the requirements of clause 4.3.6 of Nema TS-2. All configuration parameters for functions and options beyond the requirements of the standard shall be stored in non-volatile memory within the MMU. This memory shall be programmable from the front panel menu driven interface, data downloaded via the EIA-232 port, or loaded from shadow memory located on the program card (see 0).

(5) **Program Card Memory** The program card supplied with the MMU shall provide non-volatile memory that contains the configuration parameters for the enhanced features of the MMU, such that transferring the program card to a different MMU completely configures that MMU. The non-volatile memory device used on the program card shall not utilize any I/O pins designated as “Reserved” by Nema TS-2.

EVENT LOGGING FUNCTIONS

(1) **General** The MMU shall be capable of storing in non-volatile memory a minimum of 100 events. Each event shall be marked with the time and date of the event. These events shall consist of fault events, AC Line events, reset events, and configuration change events. The capability to assign a four digit identification number and 30 character

description to the unit shall be provided. The event logs shall be uploaded to a PC using the serial port of the MMU and Windows based software provided by the manufacturer.

Each event log report shall contain the following information:

a) Monitor ID#: a four digit (0000-9999) ID number and 30 character description assigned to the monitor.

b) Time and Date: time and date of occurrence.

c) Event Number: identifies the record number in the log. Event #1 is the most recent event.

(2) **Reports**

a) **Monitor Status Report (CS)** The Current Status report shall contain the following information:

i) Fault Type: the fault type description.

ii) Field Status: the current GYR(W) field status and field RMS voltages if the monitor is not in the fault state, or the latched field status and field RMS voltages and fault channel status at the time of the fault.

iii) Cabinet Temperature: the current temperature if the monitor is not in the fault state, or the latched temperature at the time of the fault.

iv) C Line Voltage: the current AC Line voltage and frequency if the monitor is not in the fault state, or the AC Line voltage and frequency at the time of the fault.

v) Control Input Status: the current state and RMS voltages of the Red Enable input & Load Switch Flash bit input if the monitor is not in the fault state, or the status latched at the time of the fault.

b) **Previous Fault Log (PF)** The Previous Fault log shall contain the following information:

i) Fault Type: the fault type description.

ii) Field Status: the latched field status with RMS voltages, fault channel status, RP Detect status and Field Check status at the time of the fault.

iii) Cabinet Temperature: the latched temperature at the time of the fault.

iv) AC Line Voltage: the AC Line voltage & frequency at the time of the fault.

v) Control Input Status: the latched state of the Red Enable input at the time of the fault.

c) **AC Line Event Log (AC)** The AC Line log shall contain the following information:

i) Event Type: describes the type of AC Line event that occurred.

Power-up - AC on, monitor performed a cold start

Interrupt - AC Line < Brownout level

Restore - AC restored from AC brown-out or AC interruption (AC Off), no cold start

ii) AC Line Voltage: the AC Line voltage & frequency at the time of the event.

d) **Monitor Reset Log (MR)** The Monitor Reset log shall contain the following information:

i) The monitor was reset from a fault by the front panel Reset button, or External Reset input, or a non-latched event clear.

e) **Configuration Change Log (CF)** The Configuration Change log shall contain the following information:

i) The status of all configuration programming including the contents of the Program Card.

ii) Any configuration programming inputs such as 24V Inhibit, Port 1 Disable, Type Select.

iii) Configuration Check Value: A unique check value that is based on the configuration of items #a and #b above.

The log shall also indicate which items have been changed since the last log entry.

f) **Signal Sequence Log (SSQ)** A minimum of five logs shall be provided that graphically display all field signal states and Red Enable for up to 30 seconds prior to the current fault trigger event. The resolution of the display shall be at least 50 milliseconds.

(3) **Remote Monitor Configuration**

a) **Setup Wizard** A setup mode shall be provided by the Windows based software that automatically configures the Dual Indication enable, Field Check enable, Red Fail enable, and Minimum Yellow Plus Red Clearance enable parameters from user input consisting only of channel assignment and class (vehicle, ped, pp-turn, etc) responses.

b) **Upload From File** All configuration parameters for functions and options beyond the requirements of the standard shall be programmable by transferring a file from a PC to the MMU via the front panel EIA-232 port. These parameters shall be stored in nonvolatile memory in the MMU.

c) **Download to File** All configuration parameters for functions and options beyond the requirements of the standard shall be downloadable to a PC by transferring a file from the MMU to a PC via the front panel EIA-232 port.

D. Cabinet and Cabinet Equipment.

a. Each controller shall be furnished completely housed in a door-in-door ground mounted metal cabinet that meets the requirements for a TS2 Type 2 traffic control cabinet assembly. The cabinet assembly shall meet, as a minimum, all applicable sections of the NEMA Standard Publication No. TS2-1992. Where differences occur, this specification shall govern.

b. Each eight phase cabinet shall consist of a size P cabinet capable of being base mounted, type three configuration main panel, 8 position (16 loop) detector rack, and auxiliary equipment as defined this specification.

c. Cabinet Construction

Each cabinet shall be constructed from type 5052-H32 aluminum with a minimum thickness of 0.125 inches.

Each cabinet shall be designed and manufactured with materials that will allow rigid mounting, whether intended for pole, base or pedestal mounting. The cabinet must not flex on its mount.

A rain channel shall be incorporated into the design of the main door opening to prevent liquids from entering the enclosure. Each cabinet door opening must be a minimum of 80 percent of the front surface of the cabinet. A stiffener plate shall be welded across the inside of the main door to prevent flexing.

The top of each cabinet shall incorporate a 1-inch slope toward the rear to prevent rain accumulation.

Each cabinet shall be supplied with a natural aluminum finish unless otherwise noted. Sufficient care shall be taken in handling to ensure that scratches are minimized. All surfaces shall be free from weld flash. Welds shall be smooth, neatly formed, free from cracks, blowholes and other irregularities. All sharp edges shall be ground smooth.

All seams shall be sealed with RTV sealant or equivalent material on the interior of the cabinet.

All cabinets shall be supplied with two easily removable shelves manufactured from 5052-H32 aluminum. Shelves shall be a minimum of 10 inches deep.

The shelf shall have horizontal slots at the rear and vertical slots at the front of the turned down side flange. The shelf shall be installed by first inserting the rear edge of the shelf on the cabinet rear sidewall mounting studs, then lowering the shelf on the front sidewall mounting studs. The shelf shall be held in place by a nylon tie-wrap inserted through holes on the front edge of the shelf and around the front sidewall mounting studs.

The front edge of the upper shelf shall have holes punched every 6 inches to accommodate tie wrapping of cables/harnesses.

One set of vertical "C" channels shall be mounted on each interior wall of the cabinet for the purpose of mounting the cabinet components. The channels shall accommodate spring-mounted nuts or studs. All mounting rails shall extend to within 7 inches of the top and bottom of the cabinets. Sidewall rail spacing shall be 7.88 inches center-to-center. Rear wall rail spacing shall be 18.50 inches center-to-center. (Size 5 and 6 cabinets) or 7.88 inches in size 3 cabinets. The rails shall be mounted to the cabinet with bolts (pressed into plates welded to interior of cabinet) to form a modular assembly.

The main door and police door-in-door shall close against a weatherproof and dust-proof, closed-cell neoprene gasket seal. The gasket material for the main door shall be a minimum of 0.250 inches thick by 1.00 inch wide. The gasket material for the police door shall be a minimum of 0.250 inches thick by 0.500 inches wide. The gaskets shall be permanently bonded to the cabinet.

The lower section of the cabinet door shall be equipped with a louvered air entrance. The air inlet shall be large enough to allow sufficient airflow per the rated fan capacity. Louvers must satisfy the NEMA rod entry test for 3R ventilated enclosures. A non-corrosive, vermin- and insect-proof, removable air filter shall be secured to the air entrance. The filter shall fit snugly against the cabinet door wall.

The roof of the cabinet shall incorporate an exhaust plenum with a vent screen. Perforations in the vent screen shall not exceed 0.125 inches in diameter.

The main door hinge shall be a one-piece, continuous piano hinge with a stainless steel pin running the entire length of the door. The hinge shall be attached in such a manner that no rivets or bolts are exposed.

The main door of a size 5 or larger cabinet shall include a mechanism capable of holding the door open at approximately 90, 125, and 150 degrees under windy conditions. Manual placement of the mechanism shall not be required by the field technician. The main door of a size 3 cabinet shall include a mechanism capable of holding the door open at approximately 90 and 150 degrees under windy conditions.

The main door shall be equipped with a Corbin tumbler lock number 1548-1. Two keys shall be supplied.

The police door-in-door shall be provided with a treasury type lock Corbin No. R357SGS or exact equivalent and one key.

All cabinet inside and outside surfaces shall be primed with phosphate treatment and primer. After priming, all exterior surfaces shall receive a minimum of 2 coats of rust resistant silver grey enamel and interior surfaces shall be furnished with rust resistant high gloss white enamel.

Each cabinet shall be of sufficient size to accommodate all equipment. At a minimum, the minimal cabinet size is as follows:
- Size P cabinet - 52" H x 44" W x 24" D

d. Terminals and Facilities/Main Panel Design and Construction.

The main panel shall be constructed from 5052-H32 brushed aluminum of 0.125 inches minimum thickness and formed so as to minimize any flexing when plug-in components are installed.

All position main panels shall be hinged at the bottom to allow easy access to all wiring on the rear of the panel.

The main panel shall be fully wired in the following configuration:

Type 3 Configuration - Twelve load switch sockets, six flash transfer relay sockets, one flasher socket and two main panel BIU rack slots.

All load switch and flash transfer relay socket reference designators shall be silk-screen labeled on the front and rear of the main panel to match drawing designations. Socket pins shall be marked for reference on the rear.

Up to eight load switch sockets may be positioned horizontally or stacked in two rows on the main panel. Main panels requiring more than eight load switch sockets shall be mounted in two horizontal rows.

All load switches shall be supported by a bracket extending at least half the length of the load switch.

Rack style mounting shall be provided to accommodate the required BIUs per the configuration listed in section 3.3 above. A dual-row, 64-pin female DIN 41612 Type B connector shall be provided for each BIU rack position. Card guides shall be provided for both edges of the BIU. Terminal and facilities BIU mounting shall be an integral part of the main panel. Detector rack BIU mounting shall be an integral part of the detector rack.

All BIU rack connectors shall have pre-wired address pins corresponding to the requirements of the TS2 specification. The address pins shall control the BIU mode of operation. BIUs shall be capable of being interchanged with no additional programming.

The 12- load switch position main panels shall have all field wires contained on two rows of horizontally mounted terminal blocks. The upper row shall be wired for the pedestrian and overlap field terminations. The lower row shall be reserved for phase one through phase eight vehicle field terminations.

All field output circuits shall be terminated on a barrier type terminal block with a minimum rating of 60 amps.

All field input/output I/O) terminals shall be identified by permanent alphanumerical labels. All labels shall use standard nomenclature per the NEMA TS2 specification.

All field flash sequence programming shall be accomplished at the field terminals with the use of a screwdriver only.

Field terminal blocks shall be wired to use four positions per vehicle or overlap phase (green, yellow, red, flash). It shall not be necessary to de-bus field terminal blocks for flash programming.

It shall also be possible to program which flasher circuit the phase shall be connected to.

The main panel shall contain at least one flasher socket (silk screen labeled) capable of operating a 15-amp, 2-pole, NEMA solid state flasher. The flasher shall be supported by a bracket that extends at least half its length.

One RC network shall be wired in parallel with each group of three flash-transfer relays and any other relay coils.

All logic-level, NEMA-controller and Malfunction Management Unit input and output terminations on the main panel shall be permanently labeled. Cabinet prints shall identify the function of each terminal position.

At a minimum, two 20-position terminal blocks shall be provided at the top of the main panel to provide access to the controller unit's programmable and non-programmable I/O. Terminal blocks for DC signal interfacing shall have a number 6-32 x 7/32 inch screw as minimum.

All main panel wiring shall conform to the following wire size:

Green/Walk load switch output	- 14 gauge
Yellow load switch output	- 14 gauge
Red/Don't Walk load switch output	- 14 gauge
MMU (other than AC power)	- 22 gauge
Controller I/O	- 22 gauge
AC Line (power panel to main panel,(1 for each 4 LS)	- 10 gauge
AC Line (main panel)	- 14 gauge
AC Neutral (power panel to main panel)	- 10 gauge
Earth ground (power panel)	- 8 gauge
Logic ground	- 22 gauge
Flash programming	- flasher terminal - 14 gauge - field terminal - 14 gauge

All wiring, 14 AWG and smaller, shall conform to MIL-W-16878/1, type B/N, 600V, 19-strand tinned copper. The wire shall have a minimum of 0.010 inches thick PVC insulation with clear nylon jacket and rated to 105 degrees Celsius. All 12 AWG and larger wire shall have UL listed THHN/THWN 90 degrees Celsius, 600V, 0.020 inches thick PVC insulation and clear nylon jacketed.

All controller and Malfunction Management Unit cables shall be of sufficient length to allow the units to be placed on either shelf or the outside top of the cabinet in the operating mode. Connecting cables shall be sleeved in a braided nylon mesh. The use of exposed tie-wraps or interwoven cables are unacceptable.

All cabinet configurations shall be provided with enough RS-485 Port 1 communication cables to allow full capabilities of that cabinet. Each communication cable connector shall be a 15-pin metal shell D subminiature type. The cable shall be a shielded cable suitable for RS-485 communications.

All main panels shall be pre-wired for a Type-16 Malfunction Management Unit.

Provide necessary terminal for video detection.

All wiring shall be neat in appearance. All cabinet wiring shall be continuous from its point of origin to its termination point. Butt type connections/splices are not acceptable.

All control cables shall be protected by a nylon jacket or equivalent protection to prevent any contact with cabinet metal shelves, doors and any other sharp corners.

All connecting cables and wire runs shall be secured by mechanical clamps. Stick-on type clamps are not acceptable.

The grounding system in the cabinet shall be divided into three separate circuits (AC Neutral, Earth Ground, and Logic Ground). These ground circuits shall be connected together at a single point as outlined in the NEMA TS2 Standard.

All pedestrian pushbutton inputs from the field to the controller shall be opto-isolated through the BIU and operate at 12 VAC.

All wire (size 16 AWG or smaller) at solder joints shall be hooked or looped around the eyelet or terminal block post prior to soldering to ensure circuit integrity. Lap joint soldering is not acceptable.

e. Power Panel Design and Construction

The power panel shall consist of a separate, wholly enclosed module, securely fastened to the right sidewall of the cabinet. The power panel shall be wired to provide the necessary power to the cabinet, controller, Malfunction Management Unit, cabinet power supply and auxiliary equipment.

f. Auxiliary Cabinet Equipment

The cabinet shall be provided with a thermostatically controlled (adjustable between 80-150 degrees Fahrenheit) ventilation fan in the top of the cabinet plenum. The fan shall be a ball bearing type fan and shall be capable of drawing a minimum of 100 cubic feet of air per minute. The fan unit shall not crack, creep, warp or have bearing failure within a 7 year duty cycle. The maximum noise level shall be less than 40 decibels. The fan unit shall be corrosion resistant.

A 25-watt incandescent lamp shall be included. The lamp shall be wired to a door activated switch mounted near the top of the door.

Provide a 15 amp circuit breaker for auxiliary equipment, 20 amp circuit breaker for street lights and a non-GFI outlet for additional equipment.

Provide all necessary hardware to accommodate fiber optic interconnect and Ethernet communications.

Provide a photocell and contactor for street lighting powered from signal cabinet.

Provide an Ethernet switch and a fiber/Ethernet modem.

Install all additional control units in cabinet per plans. Control units include, but are not limited to, audible pedestrian push button control unit, emergency vehicle preemption control device including card rack, and video detection processor.

Provide a sealable print pouch shall be mounted to the door of the cabinet. The pouch shall be of sufficient size to accommodate one complete set of cabinet prints.

Provide two sets of complete and accurate cabinet drawings shall be supplied with each cabinet.

Provide one set of manuals for each controller supplied.

g. Vehicle Detection

A vehicle detector amplifier rack shall be provided in each cabinet. Detector racks shall be in the following configuration:

Shall support up to 16 channels of loop detection and one BIU.

Each cabinet shall contain detector interface panels for the purpose of connecting field loops and vehicle detector amplifiers. The panels shall be manufactured from FR4 G10 fiberglass, 0.062 inches thick, with a minimum of 2 oz. of copper for all traces.

One 16-position interface panel shall be provided for each 16-channel rack. The interface panel shall be secured to a mounting plate and attached to the left sidewall of the cabinet.

Each interface panel shall allow for the connection of eight or sixteen independent field loops. A ground bus terminal shall be provided between each loop pair terminal to provide a termination for the loop lead-in cable ground wire.

Lightning protection device mounting holes shall be provided to accommodate an Edco SRA-16C, or Edco SRA-6, or Edco LCA-6, or a varistor lightning protection device. Lightning protection devices shall not be provided.

A cable consisting of 20 AWG twisted pair wires shall be provided to enable connection to and from the panel to a detector rack. The twisted pair wires shall be color-coded red and white wires.

All termination points shall be identified by a unique number and silk screened on the panel.

Each detector rack shall be powered by the cabinet power supply (refer to section 9.6 of this specification).

h. Cabinet Test Switches and Police Panel

A test switch panel shall be mounted on the inside of the main door. The test switch panel shall provide the following:

(1) AUTO/FLASH SWITCH. When in the flash position, power shall be maintained to the controller and the intersection shall be placed in flash. The controller shall not be stop timed when in flash.

(2) STOP TIME SWITCH. When applied, the controller shall be stop timed in the current interval.

(3) CONTROL EQUIPMENT POWER ON/OFF. This switch shall control the controller, MMU, and cabinet power supply AC power.

The police door switch panel shall contain the following:

(1) SIGNALS ON/OFF SWITCH. In the OFF position, power shall be removed from signal heads in the intersection. The controller shall continue to operate. When in the OFF position, the MMU shall not conflict or require reset.

(2) FLASH/NORMAL SWITCH. In the flash position, power shall not be removed from the controller and stop time shall be applied.

All toggle type switches shall be heavy duty and rated 15 amps minimum. Single- or double-pole switches may be provided, as required.

Any exposed terminals or switch solder points shall be covered with a non-flexible shield to prevent accidental contact.

All switch functions must be permanently and clearly labeled.

All wire routed to the police door-in-door and test switch pushbutton panel shall be adequately protected against damage from repetitive opening and closing of the main door.

All test switch panel wiring shall be connected to the main panel via a multiple pin type connector.

i. Auxiliary Devices

Load Switches

Load switches shall be solid state and shall conform to the requirements of Section 6.2 of the NEMA TS2 Standard.

Load switches shall be dedicated per phase. The use of load switches for other partial phases is not acceptable.

Flashers

The flasher shall be solid state and shall conform to the requirements of section 6.3 of the NEMA TS2 Standard.

Flash Transfer Relays

All flash transfer relays shall meet the requirements of Section 6.4 of the NEMA TS2 Standard.

The coil of the flash transfer relay must be deenergized for flash operation.

Bus Interface Units

All Bus Interface Units (BIUs) shall meet the requirements of Section 8 of the NEMA TS2 Standard.

The full complement of Bus Interface Units shall be supplied with each cabinet to allow for maximum phase and function utilization for which the cabinet is designed. BIU's shall be from the same manufacture as the controller manufacture used in the City.

Each Bus Interface Unit shall include power on, transmit and valid data indicators. All indicators shall be LEDs.

Cabinet Power Supply

The cabinet power supply shall meet the requirements of Section 5.3.5 of the NEMA TS2 Standard.

The cabinet power supply shall provide LED indicators for the line frequency, 12 VDC, 12 VAC, and 24 VDC outputs.

The cabinet power supply shall provide (on the front panel) jack plugs for access to the +24 VDC for test purposes.

One cabinet power supply shall be supplied with each cabinet assembly.

E. Equipment List and Drawings.

Detailed shop drawings of the control cabinet, equipment layout drawings and wiring diagrams of all equipment installed in the controller cabinet shall be submitted to the City for approval. Two sets of cabinet wiring diagrams shall be contained in a heavy duty clear plastic envelope mounted on the inside of the front door.

At the time of delivery, the contractor shall furnish one set of instruction manuals and an itemized price list for each type of equipment, their subassemblies, and their replacement parts. The instruction book shall include the following information: a) Table of Contents, b) operating procedure, c) step-by-step maintenance and troubleshooting information for the entire assembly, d) circuit wiring diagrams, e) pictorial diagrams of parts locations, f) parts numbers, and g) theory of operation. The instructional manuals shall include itemized parts lists. The itemized parts lists shall include the manufacturer's name and parts number for all components (such as IC', diodes, switches, relays, etc.) used in each piece of equipment. The list shall include cross references to parts numbers of other manufacturers who make the same replacement parts.

F. Warranty

(1) The contractor shall certify that the equipment meets the required specification and shall supply a complete catalog description. The following documents shall also be provided.

a. A warranty statement which stipulates that equipment to be supplied shall be warranted by the manufacturer for two years from the date of purchase.

b. Operations manuals.

c. Maintenance manuals.

d. Schematic diagrams.

e. Component and equipment locations within the cabinet.

(2) Controller Operation. Consistent with customary trade practices, the manufacturer shall furnish a warranty for all electrical or mechanical equipment described herein. The contractor shall turn such warranty over to the owner for potential dealing with the guarantor.

(3)During the installation and testing of the controller, the contractor shall provide, at his own expense, a competent representative to oversee, direct and manage the installation and testing of the controller. In the final stages of the installation and testing, the manufacturer's representative shall be available at the job site for consultation until such time as the controller operation is tested and accepted.

G. Measurement
The department will measure Traffic Signal Controller and Cabinet 8-Phase Fully Actuated as a complete lump sum unit of work, acceptably completed.

H. Payment. The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.08	Traffic Signal Controller and Cabinet 8-Phase Fully Actuated	Each

Payment is full compensation for furnishing and installing the signal controller and conflict monitor together with cabinet, all required control units, all additional harnesses for preemption, switches for flashing operation, and for fittings as are necessary to assure that the controller will perform the said functions.

33. Removing Lighting Units, Item SPV.0060.09.

A Description
The work under this item consists of removing lighting poles, arms and luminaires as shown in the plans; removing associated underground conductors.

Lighting unit components shall be stored for reinstallation, transported or disposed of.

Removal of concrete bases will be paid under a separate pay item.

B (Vacant)

C Construction
Lighting units shall be stored and protected for reinstallation where indicated on the plans. Any damage caused by the contractor to the lighting units shall be repaired or replaced as determined by the engineer at no additional cost.

Lighting unit components to be salvaged:
Transport luminaires where indicated on the plans to the City of Waukesha Garage at 300 Sentry Drive. Coordinate drop-off with Steve Dzeikan, (414) 507-1132.

Components not to be stored for reinstallation or transported shall be disposed of off-site appropriately; recycle materials where possible.

Remove associated underground conductors feeding lighting units being removed where required.

D Measurement
The department will measure Removing Lighting Units, 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.0060.09	Removing Lighting Units	Each

Payment is full compensation for removing, storage and protection, transporting, disposal, for removing related underground cable, and for splicing through the underground circuit.

34. Lighting Pull Boxes PVC 15 X 30-Inch, Item SPV.0060.10.

A Description
This work includes constructing a pull box in accordance to the details shown on the plans and as hereinafter provided.

B Materials
Polyvinyl chloride pipe needs to conform to the applicable requirements of standard spec 612.2.6.

Pull box cover and frame needs to conform to the applicable requirements of standard spec 611.2 and as shown on the plans.

The coarse aggregate will be size No. 2 in accordance to standard spec 501.3.6.4.5.

C Construction
Install flush with grade and as indicated on the plans.

D Measurement
The department will measure Lighting Pull Boxes PVC 15x30-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.0060.10	Pull Boxes PVC 15x30-Inch	Each

Payment is full compensation for furnishing and installing all materials including pipe, cover and frame, aggregate; and for excavation, backfill and disposal of surplus material.

35. Standard Lighting Units, Item SPV.0060.11; Short Lighting Units, Item SPV.0060.12.

A Description

This work includes providing lighting units including poles, mast arms, LED luminaires, fusing, pole wiring, nut covers and all necessary appurtenances in accordance to the plans and stated herein.

Concrete bases are paid for separately.

B Materials

B.1 Poles

Furnish aluminum poles with Class 1 Anodized black finish in accordance to standard spec 657 with internal vibration dampener and as indicated on the plans.

Provide standard or short shaft as required by the plans.

B.2 Mast Arms

Furnish bolt-on type mast arms with Class 1 anodized black aluminum finish, utilizing 4 stainless steel bolts to attach the arm to the pole in accordance to standard spec 657 and as indicated on the plans.

B.3 Pole Wiring

Conductors from the underground cable network to the luminaire shall be #12/2 Type UF cable. In each utilized phase conductor in the handhole, there shall be installed a 1-pole secondary inline 600 VAC fuse assembly with #12AWG copper crimp connections at each end, and a fast acting, current limiting fuse. Conductors shall have sufficient length to permit removal of the fuse assembly through the handhole of the pole.

B.4 Luminaires

LED luminaires shall be of a slim, low profile design optimized for minimum wind loading, constructed from rugged extruded aluminum and cast aluminum components. LED drivers are mounted in the aluminum housing which is suitable for wet listed operation (per UL 1598 requirements). Integrated high performance aluminum heat-sink specifically designed for LED applications. Finish includes a primer with an ultra-durable powder topcoat (black finish) resistant to corrosion and ultraviolet degradation and abrasion. Luminaires shall have a 5 year warranty on luminaire components and finish.

The luminaire shall be of a cobrahead shape and style, not exceed 28” in length, an EPA not exceeding 0.80 sq. ft. and a maximum weight of 21lbs.

The luminaire shall include replaceable LED modules, driver and 10kv surge suppression module for protection of the LED circuit boards.

The LED luminaires shall consist of 4000K (+/-300K within supplied LED package), 70CRI (min.), 120-277V operating input voltage, high efficacy LEDs (90+ lumens/watt), L70 of 100,000+hrs., 6,433 lumen output, 73 watts, type 3 distribution.

The luminaires shall be Cooper Lighting/Lumark #LDRC-T3-B03-E-BK-PER with photocontrol shorting cap accessory.

C Construction
The lighting unit shall be assembled and installed per the manufacturer's instructions. The contractor shall install unit on a concrete base with proper luminaire orientation as indicated on the plans.

Install pole fusing as indicated on the plans.

D Measurement
The department will measure Standard Lighting Units and Short Lighting Units 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.0060.11	Standard Lighting Units	Each
SPV.0060.12	Short Lighting Units	Each

Payment is full compensation for materials, including poles, arms, LED luminaires, pole wiring, fusing, nut covers, hardware and providing appurtenances necessary to completely install the lighting unit.

36. Reinstalling Lighting Units, Item SPV.0060.13.

A Description
Work under this item consists of reinstalling stored lighting poles, mast arms, pole wiring/fusing and luminaires, as shown in the plans on a new concrete base.

New concrete base to be paid separately.

B (Vacant)

C Construction
Reinstall lighting unit on new concrete base.

Replace any missing hardware (i.e. handhole screws, etc.) on reinstalled units.

D Measurement
The department will measure Reinstalling Lighting Units 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.0060.13	Reinstalling Lighting Units	Each

Payment is full compensation for assembling and installing the pole, arms, and luminaires, pole wiring/fusing; and for hardware.

37. Temporary Lighting Units Single, Item SPV.0060.14; Temporary Lighting Units Twin, Item SPV.0060.15.

A Description

The work under this item consists of furnishing and installing wood pole, mast arm, luminaire, luminaire wiring, fusing, down guys, insulators and other incidental items required. All work shall be in accordance to standard spec 651.

B Materials

Wood poles shall be Class V or larger with a 35' minimum overall length. The poles shall be shall be northern pine in accordance to ANSI standards 05.1 (specifications and dimensions of wood poles). Pressure treatment shall be 5% pentachlorophenol with a minimum of 8 pounds per cubic foot net retention of the oil-borne preservative.

Down guys shall be installed on poles that are at the end of an aerial cable run or where aerial cable tension would cause the pole to lean. The down guys shall be galvanized and meet the requirements as specified under Wood Poles.

Luminaires shall be 250W high pressure sodium, with a type M-C-3 distribution. Luminaires shall be in accordance to Standard spec 659.

Mast arms shall be 6 feet long with a 2 foot rise suitable for attachment to a wood pole. The mast arms shall be mounted to the wood pole within 1 foot of the top using a through-bolt for attachment at the top and lag screws for attachment at the bottom.

C Construction

The depth of the pole in the ground shall not be less than 5 feet or as directed by the engineer.

Install poles in accordance to the specification for Wood Poles.

Provide wiring for the luminaire for a minimum length 1 foot longer than the mast arm. The wiring shall consist of 3#14 with a 5A KTK fuse/fuseholder located in the phase conductor near the pole. The wire shall be in accordance to standard spec 655.

D Measurement
The department will measure Temporary Lighting Units (Type) 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.0060.14	Temporary Lighting Units Single	Each
SPV.0060.15	Temporary Lighting Units Twin	Each

Payment is full compensation for furnishing and installing a wood pole, mast arm(s), luminaire(s), luminaire wiring/fusing, insulators, down guy, and for furnishing all excavation and backfill.

38. Removing Temporary Lighting Units, Item SPV.0060.16.

A Description
The work under this item consists of removing existing temporary lighting units including wood pole, luminaire, arm, insulators, splices and appurtenances as appropriate from the site.

B (Vacant)

C Construction
Dispose of temporary lighting units and related materials off the site.

Backfill hole and restore surface as appropriate due to removal of pole.

D Measurement
The department will measure Removing Temporary Lighting Units 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.0060.16	Removing Temporary Lighting Units	Each

Payment is full compensation for removals and disposal of materials; and for backfilling.

39. Wood Poles, Item SPV.0060.17.

A Description
The work under this item consists of furnishing and installing wood poles, down guys, insulators and other incidental items required and as shown on the plans. All work shall be in accordance to standard spec 651.

B Materials

Wood poles shall be Class V or larger with a 35' overall length - adjust length as needed to accommodate locations below existing utility poles/lines. The poles shall be northern pine in accordance to ANSI standards 05.1 (specifications and dimensions of wood poles). Pressure treatment shall be 5% pentachlorophenol with a minimum of 8 pounds per cubic foot net retention of the oil-borne preservative.

Down guys shall be galvanized and meet the following requirements:

- Three-eighths (3/8) inch nominal diameter 7-strand, zinc coated steel wire conforming to ASTM A475, 11,500 pounds minimum breaking strength, utilities grade or better.
- A twin eye 5/8-inch nominal diameter anchor rod with a minimum breaking strength of 11,500 pounds.
- An expanding or plate type anchor with an expanded area of 125 square inches or greater. A screw type anchor may be used provided the anchor is 10 inches in diameter, has 78 square inches of area and a rod diameter 1-1/4 inch by 66 inches or larger and galvanized.
- A 7-foot PVC or plastic guy guard.
- Guy wire clamps shall be 3-bolt and have a minimum breaking strength of 11,500 pounds. A galvanized service sleeve shall be used to hold down the loose guy ends beyond the guy clamp.
- The dead-ends shall be made of the same material as the guy wire.
- A guy strain insulator ANSI Class 54-2 tensile strength 12,000 pounds maximum cable diameter of ½ inch.

C Construction

The depth of the pole in the ground shall not be less than 5 feet or as directed by the engineer.

All poles shall be raked 1-foot and down guyed before any span wire or cables are attached as appropriate.

Individual down guys shall be installed in the opposite direction of the strain of the span wires.

Angle thimble-eyes and/or angle-eye bolt shall be used to attach the down guy to the pole.

D Measurement

The department will measure Wood Poles 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.0060.17	Wood Poles	Each

Payment is full compensation for furnishing and installing a wood pole, insulators, down guy, for furnishing all excavation and backfill.

40. Removing Wood Poles, Item SPV.0060.18.

A Description
The work under this item consists of removing existing wood poles including insulators, down guys, risers, junction boxes, and appurtenances as shown in the plans and required from the site. Disconnect from circuit(s) to remain as required.

B (Vacant)

C Construction
Dispose of wood poles and related materials off the site.

Backfill hole and restore surface as appropriate due to removal of pole and any down guys.

D Measurement
The department will measure Removing Wood Poles 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.0060.18	Removing Wood Poles	Each

Payment is full compensation for removals and disposal of materials; and for backfilling.

41. Pull Boxes Composite 24 X 36 X 42-Inch, Item SPV.0060.19.

A Description
This work shall consist of furnishing and installing electrical pull boxes in accordance to standard spec 653, the plan details, and as herein provided.

B Materials
Pull boxes shall be a rectangular composite enclosure with nominal 24” wide x 36” long and 42" total depth as shown on the plans. The composite boxes shall be UL Listed, constructed of polymer concrete and reinforced by a heavy-weave fiberglass. The pull boxes shall be rated for 15,000 lbs. over a 10" x 10" area at a temperature of -50°F. The box shall be furnished with a cover having a "Fiber Optics" logo, skid resistant surface with a minimum coefficient of friction of .5 and concrete gray color. The cover fasteners shall be stainless steel captive 3/8-inch hex head bolts with stainless steel inserts.

C Construction
The pull boxes shall be set flush with the grade or pavement and installed on aggregate as indicated on the plans.

D Measurement
The department will measure Pull Boxes Composite 24x36x42-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.0060.19	Pull Boxes Composite 24x36x42-Inch	Each

Payment is full compensation for furnishing and installing all materials, including pull box, crushed aggregate; and for excavation, backfill and disposal of surplus materials.

42. Furnish and Install Gate Valves and Valve Boxes: 8-Inch, Item SPV.0060.20; 12-Inch, Item SPV.0060.21; Furnish and Install Butterfly Valve and Valve Box: 16-Inch, Item SPV.0060.22.

A Description
The contractor shall furnish and install all 8" and 12" gate valves and 16" butterfly valves and valve boxes including polyethylene wrap, bedding, cover and compacted granular backfill. The contractor shall check all nuts and bolts for tightness, prior to installing valves. Any valve nut that needs to be placed deeper than 7 feet below finished grade, the contractor shall install a valve extension on the nut. The top of the valve nut extension shall be between 4' and 6' from the finished grade. Screw-type risers or long throat risers shall be used to accommodate final lift of asphalt, if boxes cannot be turned to final grade. No inserts will be allowed. The contractor is responsible for the necessary materials, excavation, backfill, compaction and maintenance of ditches for this work.

B Materials
Furnish materials in accordance to Chapter 4 of the Waukesha Water Utility standard specifications.

C Construction
Install gate valves and valve boxes in accordance to Chapter 6 of the Waukesha Water Utility standard specifications.

D Measurement
The department will measure Furnish and Install Gate Valves and Valve Boxes (Size) and Furnish and Install Butterfly Valve and Valve Box: 16-Inch 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.0060.20	Furnish and Install Gate Valves and Valve Boxes, 8-Inch	Each
SPV.0060.21	Furnish and Install Gate Valves and Valve Boxes, 12-Inch	Each
SPV.0060.22	Furnish and Install Butterfly Valve and Valve Box: 16-Inch	Each

Payment is full compensation for all necessary labor, materials, excavation, backfill, compaction and maintenance of trenches for this work.

43. Reconnect 3/4" Copper Water Service Type SL1, Item SPV.0060.23.

A Description

This special provision describes reconnecting the existing 3/4" copper water service laterals to the new water main, shown as "SL1" on the plans. The contractor shall tap the new water main for a 3/4" service using a direct tap for D.I. water main or a saddle for PVC water main and a 1" corporation. The contractor will be able to bend the existing copper service lateral into the corporation. All pipe connections to be compression connections. The contractor shall provide the necessary materials, excavation, sand bedding and cover, backfill, compaction and maintenance of ditches for this work.

B Materials

Furnish materials in accordance to Chapter 4 of the Waukesha Water Utility standard specifications.

C Construction

Install copper water service in accordance to Chapter 6 of the Waukesha Water Utility standard specifications.

D Measurement

The department will measure Reconnect ¾" Copper Service Type SL1 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.0060.23	Reconnect 3/4" Copper Water Service Type SL1	Each

Payment is full compensation for furnishing all labor, materials, excavation, sand bedding and cover, backfill, compaction and maintenance of trenches for this work.

44. Reconnect 1” Copper Water Service Type SL2, Item SPV.0060.24.

A Description

This special provision describes reconnecting the existing copper/PE water service laterals to the new water main, shown as “SL2” on the plans. The contractor shall tap the new water main for a 1” service using a direct tap for D.I. water main or a saddle for PVC water main and a 1” corporation. The contractor will be able to bend the existing copper service lateral into the corporation. All pipe connections to be compression connections. The contractor shall provide the necessary materials, excavation, sand bedding and cover, backfill, compaction and maintenance of ditches for this work.

B Materials

Furnish materials in accordance to Chapter 4 of the Waukesha Water Utility standard specifications.

C Construction

Install copper water service in accordance to Chapter 6 of the Waukesha Water Utility standard specifications.

D Measurement

The department will measure Reconnect 1” Copper Service Type SL2 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.0060.24	Reconnect 1” Copper Water Service Type SL2	Each

Payment is full compensation for furnishing all labor, materials, excavation, sand bedding and cover, backfill, compaction and maintenance of trenches for this work.

45. Reconnect 3/4” or 1” Copper Water Service Type SL3, Item SPV.0060.25.

A Description

This special provision describes reconnecting the existing copper/PE water service laterals to the new water main, shown as “SL3” on the plans. The contractor shall tap the new water main for a 1” service using a direct tap for D.I. water main or a saddle for PVC water main, a 1” corporation, ~ 6-Feet of 1” PE (CTS) pipe with tracer wire and a 1” or 1”x3/4” straight coupling. All pipe connections to be compression connections. The contractor shall provide the necessary materials, excavation, sand bedding and cover, backfill, compaction and maintenance of ditches for this work.

B Materials
Furnish materials in accordance to Chapter 4 of the Waukesha Water Utility standard specifications.

C Construction
Install copper water service in accordance to Chapter 6 of the Waukesha Water Utility standard specifications.

D Measurement
The department will measure Reconnect ¾" or 1" Copper Service Type SL3 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.0060.25	Reconnect 3/4" or 1" Copper Water Service Type SL3	Each

Payment is full compensation for furnishing all labor, materials, excavation, sand bedding and cover, backfill, compaction and maintenance of trenches for this work.

46. Reconnect 1-1/4" Copper Water Service Type SL4, Item SPV.0060.26.

A Description
This special provision describes reconnecting the existing 1-1/4" copper/PE water service laterals to the new water main, shown as "SL4" on the plans. The contractor shall tap the new water main for a 1-1/4" service using a saddle for both D.I and PVC water main, a 1-1/4" corporation, ~ 6-Feet of 1-1/4" PE (CTS) pipe with tracer wire and a 1-1/4" straight coupling. All pipe connections to be compression connections. The contractor shall provide the necessary materials, excavation, sand bedding and cover, backfill, compaction and maintenance of ditches for this work.

B Materials
Furnish materials in accordance to Chapter 4 of the Waukesha Water Utility standard specifications.

C Construction
Install copper water service in accordance to Chapter 6 of the Waukesha Water Utility standard specifications.

D Measurement
The department will measure Reconnect 1 ¼" Copper Water Service Type SL4 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.0060.26	Reconnect 1-1/4" Copper Water Service Type SL4	Each

Payment is full compensation for furnishing all labor, materials, excavation, sand bedding and cover, backfill, compaction and maintenance of trenches for this work.

47. Reconnect 4-Inch or 6-Inch Water Service Type SL5, Item SPV.0060.27.

A Description

This special provision describes reconnecting the existing water service laterals to the new water main, shown as "SL5" on the plans. The contractor shall connect the existing 4" or 6" water services to the new water main with the appropriate fittings, as noted on the plans per each lateral connection, a 6" Gate Valve, 6" - 45^0 bends and 6" PVC, DR-14, AWWA C900, Pressure Class of 200 PSI or 6" Ductile Iron Pipe (Thickness Class 52) with tracer wire. The contractor shall provide the necessary materials, excavation, backfill, compaction and maintenance of ditches for this work.

B Materials

Furnish materials in accordance to Chapter 4 of the Waukesha Water Utility standard specifications.

C Construction

Install water service in accordance to Chapter 6 of the Waukesha Water Utility standard specifications.

D Measurement

The department will measure Reconnect 4-Inch or 6-Inch Water Service Type SL5 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.0060.27	Reconnect 4" or 6" Water Service Type SL5	Each

Payment is full compensation for furnishing all labor, materials, excavation, sand bedding and cover, backfill, compaction and maintenance of trenches for this work.

48. Reconnect 12-Inch Water Service Type SL6, Item SPV.0060.28.

A Description

This special provision describes reconnecting the existing water service laterals to the new water main, shown as "SL6" on the plans. The contractor shall connect the existing 12" water service to the new water main with the appropriate fittings, as noted on the plans per each lateral connection, a 12" Gate Valve, 12" - 45^0 bends and 12" PVC, DR-14, AWWA C900, Pressure Class of 200 PSI or 12" Ductile Iron Pipe (Thickness Class 52)

with tracer wire. The contractor shall provide the necessary materials, excavation, backfill, compaction and maintenance of ditches for this work.

B Materials
Furnish materials in accordance to Chapter 4 of the Waukesha Water Utility standard specifications.

C Construction
Install water service in accordance to Chapter 6 of the Waukesha Water Utility standard specifications.

D Measurement
The department will measure Reconnect 12-Inch Water Service Type SL6 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.0060.28	Reconnect 12" Water Service Type SL6	Each

Payment is full compensation for all necessary labor, materials, excavation, backfill, compaction and maintenance of trenches for this work. Pipe and valve costs are included under those unit price items and are not included with this item.

49. Reconnect 2" Copper Water Service Type SL7, Item SPV.0060.29.

A Description
This special provision describes reconnecting the existing 2" copper/PE water service laterals to the new water main, shown as "SL7" on the plans. The contractor shall tap the new water main for a 2" service using a saddle for both D.I and PVC water main, a 2" corporation, ~ 6-Feet of 2" PE (CTS) pipe with tracer wire and a 2" straight coupling. All pipe connections to be compression connections. The contractor shall provide the necessary materials, excavation, sand bedding and cover, backfill, compaction and maintenance of ditches for this work.

B Materials
Furnish materials in accordance to Chapter 4 of the Waukesha Water Utility standard specifications.

C Construction
Install copper water service in accordance to Chapter 6 of the Waukesha Water Utility standard specifications.

D Measurement
The department will measure Reconnect 2" Copper Service Type SL7 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.0060.29	Reconnect 2" Copper Water Service Type SL7	Each

Payment is full compensation for furnishing all labor, materials, excavation, sand bedding and cover, backfill, compaction and maintenance of trenches for this work.

50. Hydrant Assembly, Item SPV.0060.30.

A Description

The contractor shall furnish and install all hydrant assemblies, which may include a 16"x6", 12"x6" or 8"x6" anchor tee, 6" hydrant valve and valve box and 6" ductile iron hydrant lead including polyethylene wrap, bedding, cover and compacted granular backfill. The contractor shall check all nuts and bolts for tightness, prior to installing hydrants. All hydrants shall be installed to the proper bury depth; the contractor is responsible for providing hydrant extensions, if required. The front nozzle must be a minimum of 18 inches behind the back of curb. The center of the nozzle shall be between 18" and 24" above final grade and include a tracer wire access box per figure 2 of the Waukesha Water Utility standard specifications. The contractor shall also provide the chlorination, flushing and pressure testing per the listed specifications. The contractor is responsible for the necessary materials, excavation, backfill, compaction and maintenance of ditches for this work.

B Materials

Furnish materials in accordance to Chapter 4 of the Waukesha Water Utility standard specifications.

C Construction

Install all hydrants in accordance to Chapter 6 and standard detail drawing Figure 2 of the Waukesha Water Utility standard specifications, unless otherwise shown or specified.

D Measurement

The department will measure Hydrant Assembly 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.0060.30	Hydrant Assembly	Each

Payment is full compensation for all necessary labor, materials, excavation, backfill, compaction and maintenance of trenches for this work.

51. Abandon Hydrant, Item SPV.0060.31.

A Description
The contractor shall abandon the existing fire hydrants in the locations shown on the plans or designated by the engineer.

B (Vacant)

C Construction
The contractor shall close the hydrant gate valve and then excavate to expose the entire hydrant, disconnect it from the hydrant lead and salvage it for pick up by the Waukesha Water Utility. Following the removal of the hydrant, the contractor shall remove the entire valve box and plug the hydrant lead with concrete and backfill the excavation.

D Measurement
The department will measure Abandon Hydrant 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.0060.31	Abandon Hydrant	Each

Payment is full compensation for all necessary labor, materials, excavation, backfill, compaction and maintenance of trenches for this work.

52. Pavement Marking Grooved Preformed Plastic Arrows Type 2 White, Item SPV.0060.32; Pavement Marking Grooved Preformed Plastic Words White, Item SPV.0060.33; Pavement Marking Grooved Preformed Plastic Arrows Bike Lane White, Item SPV.0060.34; Pavement Marking Grooved Preformed Plastic Words Bike Lane White, Item SPV.0060.35; Pavement Marking Grooved Preformed Plastic Symbols Bike Lane White, Item SPV.0060.36.

A Description
This special provision describes furnishing, grooving and installing preformed plastic pavement markings as shown on the plans, in accordance to standard spec 647, and as hereinafter provided.

B Materials
Furnish preformed plastic pavement marking and adhesive material per manufacturer's recommendations, if required, from the department's approved products list.

Furnish a copy of the manufacturer's recommendations to the engineer before preparing the pavement marking grooves.

C Construction

C.1 General

For quality assurance, provide the engineer and the region's Marking Section evidence of manufacturer training in the proper placement and installation of preformed plastic pavement marking.

Plane the grooved areas in accordance 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 pavement marking.

C.4 Groove Position

Position the groove edge in accordance to plan details. The start and end of the initial and final groove may be 0 to 4 inches from the perimeter of the pavement 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 high-pressure water after cutting to remove any build-up of cement dust and water slurry. If this is not done, the slurry may harden in the groove.

If water is used in the grooving process, allow the groove to dry a minimum of 24 hours after groove cleaning, and prior to pavement marking application. The groove surface shall be clean and dry before applying the adhesive, and pavement marking tape. Use a high-pressure air blower with at least 185 ft^3/min air flow and 120 psi air pressure to clean the groove; use of the air blower does not decrease the amount of time required for the groove to dry.

C.5.2 New Asphalt

Groove pavement 10 or more days after paving.

Use a high-pressure air blower with at least 185 ft^3/min air flow and 120 psi air pressure to clean the groove.

C.5.3 Existing Asphalt

Check for structural integrity in supporting grooving operations. If the structural integrity of the asphalt pavement is inadequate to support grooving operations, immediately notify the engineer.

Use a high-pressure air blower with at least 185 ft^3/min air flow and 120 psi air pressure to clean the groove.

C.6 Tape Application

Apply the preformed plastic pavement markings when both the air and surface temperature are 40 degrees F and rising.

Application of the tape in the groove without additional surface preparation adhesive will be as follows due to Volatile Organic Compound Limitations:

1. 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.
2. 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 tape in the groove with additional surface preparation adhesive will be as follows due to Volatile Organic Compound Limitations:

1. 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.
2. 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 surface preparation adhesive must be set (feels tacky but is no longer in liquid form) and have a matte finish rather than a glossy wet appearance. Refer to the manufacturer's instructions for determining when the surface preparation adhesive is set.

Tamp the wet reflective the pavement marking tape with a tamper cart roller, with a minimum of a 200-lb load, cut to fit the groove. Tamp a minimum of three complete cycles (6 passes) with grooved modified tamper roller cart.

D Measurement

The department will measure Pavement Marking Grooved Preformed Plastic (TYPE) by each individual pavement marking item, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.32	Pavement Marking Grooved Preformed Plastic Arrows Type 2, White	Each
SPV.0060.33	Pavement Marking Grooved Preformed Plastic Words, White	Each
SPV.0060.34	Pavement Marking Grooved Preformed Plastic Arrows Bike Lane	Each
SPV.0060.35	Pavement Marking Grooved Preformed Plastic Words Bike Lane	Each
SPV.0060.36	Pavement Marking Grooved Preformed Plastic Symbols Bike Lane	Each

Payment is full compensation for cleaning and preparing the pavement surface; furnishing and installing the material; and for removing temporary pavement marking, if necessary.

53. Construction Staking Curb Ramps, Item SPV.0060.37.

A Description
This special provision describes staking curb ramps where shown on the plans and in accordance to the requirements of standard spec 650 and as hereinafter provided.

B (Vacant)

C Construction
Stake and provide supporting documentation as required by this special provision to ensure the construction of American with Disability Act (ADA) compliant curb ramps per the Wisconsin Department of Transportation Facilities Development Manual Chapter 11, Section 46, Subject 10. Staking shall be in accordance to grade locations shown on the plan sheets with adjustments, if required, to ensure ADA compliance. Prior to project completion, provide the department with as-built plan sheets, 8-1/2 inch x 11 inch, including borders, for each ramp showing locations and elevations and curb ramp longitudinal slope used to stake and construct the curb ramp including the locations and elevation of the benchmark used to stake each curb ramp. Each sheet shall have a title block in the lower right corner which shall include the project identification number and location of the curb ramp. All sheets shall be signed, sealed, and dated by a professional engineer, licensed in the State of Wisconsin.

D Measurement
The department will measure Construction Staking Curb Ramps as each individual construction staking curb ramp, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.37	Construction Staking Curb Ramps	Each

Payment is full compensation for designing and staking curb ramps including providing all supporting documentation as provided above.

54. Manhole 9-FT Diameter, Item SPV.0060.38; Manhole 10-FT Diameter, Item SPV.0060.39; Manhole 11-FT Diameter, Item SPV.0060.40.

A Description
This special provision describes providing and installing manholes with an internal diameter of 9-ft, 10-ft and 11-ft.

B Materials
Furnish manholes in accordance to the pertinent requirements of standard spec 611.

C Construction
Construct and install manholes in accordance to standard spec 611.

D Measurement
The department will measure Manhole (FT) Diameter 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.0060.38	Manhole 9-FT Diameter	Each
SPV.0060.39	Manhole 10-FT Diameter	Each
SPV.0060.40	Manhole 11-FT Diameter	Each

Payment is full compensation for providing all materials, including all masonry, conduit and storm sewer connections, steps, and all other fittings; for furnishing all excavating, backfilling, disposing of surplus material, and for cleaning out and restoring the work site; except that the department will pay for covers, including frames, grates and lids separately.

55. Manhole Covers Special, Item SPV.0060.41.

A Description
This special provision describes furnishing and installing storm sewer manhole covers special at the elevations and locations shown on the plans in accordance to the pertinent provisions of standard spec 611 and as hereinafter provided.

B Materials
Furnish Neenah Manholes Covers Type R-1661 conforming to the requirements specified in standard spec 611.2. See plan construction details for manhole cover lettering.

C Construction
Install Manhole Covers Special in accordance to standard spec 611.3.

D Measurement
The department will measure Manhole Covers Special (Type) as each individual manhole cover special, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.41	Manhole Covers Special	Each

Payment is full compensation according to standard spec 611.5.4.

56. Inlet Covers Special Type L, Item SPV.0060.42; Inlet Covers Special Type C, Item SPV.0060.43.

A Description
This special provision describes furnishing and installing storm sewer inlet covers special at the elevations and locations shown on the plans in accordance to the pertinent provisions of standard spec 611 and as hereinafter provided.

B Materials
Furnish Neenah Inlet Covers Type R-3246 grate Type L or Type C conforming to the requirements specified in standard spec 611.2. The Inlet Cover Type R-3246 Type L and Type C grates are substitutes for the WisDOT standard Type H inlet cover identified in the SDD "Catch Basins 2x3-FT and 2.5x3-FT".

C Construction
Install Inlet Covers Special in accordance to standard spec 611.3.

D Measurement
The department will measure Inlet Cover Special as each individual inlet cover special, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.42	Inlet Covers Special Type L	Each
SPV.0060.43	Inlet Covers Special Type C	Each

Payment is full compensation according to standard spec 611.5.4.

57. TAPCO BlinkerSign Flashing LED Stop Sign, Item SPV.0060.44.

A Description

This special provision describes providing a solar-powered flashing LED stop sign as shown in the plans and hereinafter provided.

B Materials

B.1 Sign

All signs shall conform to 2009 Federal Highway Administration's MUTCD section 2A.07 on retroreflectivity and illumination.

The sign face shall be an R1-1 36"x36" sign with 8 red LEDs.

All signs blanks shall be .080" gauge aluminum minimum.

Sheeting used shall be 3M™ DG3 diamond grade or similar prismatic sheeting, unless required with a lower grade of reflectivity and include anti-graffiti overlay protection.

All sign assemblies shall use anti-vandal fasteners to mount components to sign and sign to fixture.

B.2 LEDs

Each sign assembly shall consist of up to 8 high power 1 watt Luxeon® LEDs that provide a maximum light intensity of up to 500,000mcd (millicandelas) with a viewing angle of 15°.

All LEDs shall match the color of the background or border, as per section 2A.07 of the MUTCD.

Each LED shall be sealed in 7/8" diameter, heat dissipating plastic enclosure to provide resistance to weather and vibration.

All LED enclosures shall be mounted in a 1" hole and ultrasonically welded to the sign assembly to provide maximum strength and rigidity.

All LEDs shall be wired in strings to activate simultaneously per MUTCD standards and wired in a manner (parallel) that all LEDs continue to flash in the event of failure of an individual LED.

All wire used shall conform to military specifications, MIL-W-16878D, Type D, vinyl nylon jacket.

Wiring shall be encapsulated inside a 1" x 3/8" aluminum extrusion secured to the sign assembly, to provide weather resistance and protection.

All LED 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.

B.3 Solar Panel

All solar panels shall be up to 13.5" x 15" in size and provide up to 26 watts peak total output sized for all climate and geographical locations.

All panels shall be mounted to an aluminum plate and bracket at an angle of 45°- 60° to provide maximum output. Bracket shall be secured to a 2-3/8" aluminum tube. (NOTE: COLLECTOR MUST FACE SOUTH)

All fasteners used shall be anti-vandal.

Wire used shall conform to military specifications, MIL-W-16878D, Type D, vinyl nylon jacket.

The solar panel assembly shall be mounted directly to the back of the sign assembly and be a fully self-contained onto a 2-3/8" OD round aluminum housing.

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.

B.4 Control Circuit

The control circuit shall have the capability of independently flashing dual outputs. The flashing output current and duty cycle shall be programmable.

The flashing output shall be 50 to 60 flashes per minute with 100msec duration on time. The outputs shall reach the output current as programmed for the duration of the 100msec pulse.

The output current shall be individually programmable for day and night time operation. The day and night time mode will automatically be determined by solar panel charge input and adjust to match ambient lighting conditions.

The controller shall provide 6 levels of brightness control determined by ambient conditions.

The controller will manage the battery charge and LED brightness levels in order to accommodate 30 days of continuous use without any charge.

The control circuit shall be potted in a cylindrical epoxy resin housing to be waterproof and housed in a 2-3/8" aluminum tube.

The control circuit shall operate between the temperatures of -40º to +176ºF (-40º to +80ºC).

All circuit 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.

B.5 Battery

Battery packs shall be 4.8 volt 14000mAH Nickel Metal Hydride (NiMH). Battery dimensions shall be 10.5" x 1.5" x 1.5".

All batteries shall be sealed in a plastic film to provide resistance to moisture and corrosion, and shall be housed in a 2-3/8" aluminum tube.

All batteries shall operate between the temperatures of -40º to +176ºF (-40º to +80ºC).

All batteries shall have fusing between each cell and shall be protected from overheating by means of a thermocouple sensor.

All battery 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.

C Construction

The TAPCO BlinkerSign Flashing LED Stop Sign shall be installed in accordance to the manufacturer's instructions at the locations specified in the plans.

D Measurement

The department will measure TAPCO BlinkerSign Flashing LED Stop Sign 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.0060.44	TAPCO BlinkerSign Flashing LED Stop Sign	Each

Payment is full compensation for furnishing all labor, equipment, materials, and performing the work necessary to install the sign.

58. Reconstructing Sanitary Manholes, Item SPV.0060.45.

Conform to standard spec 611, except revise standard spec 611.3.5 and standard spec 611.3.7 with the following:

A Description

This special provision amendment describes replacement of the existing cone, chimney, frame, and cover. The cone section shall be replaced in those locations indicated on the plans, and shall consist of a precast cone or slab section as site conditions dictate. The entire chimney shall be replaced with adjustment rings manufactured from ARPRO Expanded Polypropylene (EPP). Remove all existing rings and do not mix concrete and EPP rings.

B Materials

The rings shall be manufactured using a high compression molding process to produce a finished density of 120 g/l (7.5 pcf). Material shall be Pro-Ring as supplied by Cretex Specialty Products.

Any non-shrink mortar grout shall be Ipatop-Penngrout manufactured by IPA Systems, Inc. (www.ipasystems.com) or engineer approved equal. The material shall contain a balanced blend of washed and graded silica sand, finely ground Portland cement, and applicable special additive(s). Contractor must supply the engineer with verification of the product used.

Any adhesive or sealant used for watertight installation of the Pro-Ring manhole grade adjustment rings shall be M-1 Structural Adhesive/Sealant or equal meeting the following specifications:

- ASTM C-920, Type S, Grade NS, Class 25, Uses NT, T, M, G, A and O.
- Federal Specification TT-S-00230-C Type II, Class A.
- Corps of Engineers CRD-C-541, Type II, Class A.
- Canadian Standards Board CAN 19, 13-M82.
- AAMA 802.3-08 Type II, AAMA 803.3-08 Type I and AAMA 805.2-08 Group C.

No other material shall be used in the construction of the chimney section beyond those materials indicated above. This includes wood shims, bricks, stones, etc.

C Construction

Sanitary frames and covers may be picked up from the City of Waukesha Municipal Garage at 300 Sentry Drive. Contact Steve Dzeikan, (414) 507-1132, to make arrangements.

The adjustment rings shall be installed as follows:

- Installation and surface preparation shall be in accordance to the manufacturer's instructions.
- Repair any surface defects or irregularities of the top of the manhole using a uniform bed of non-shrink grout meeting the requirements noted below.
- The joint between the first grade ring and manhole cone shall be sealed using an adhesive/sealant meeting the requirements noted below.
- The joints between all manhole adjustment rings shall be sealed using an adhesive/sealant noted below.

- The joint between the top manhole adjustment ring and the frame shall not be sealed with adhesive/sealant. This joint will be sealed with an internal frame-chimney seal.
- All castings shall be centered over the opening of the corbel and adjusting rings. The top adjusting ring upon which the casting is set shall be level from side to side unless a pitch is required to match the existing surface in paved areas.

D Measurement

The department will measure Reconstructing Sanitary Manholes 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.0060.45	Reconstructing Sanitary Manholes	Each

Payment for Reconstructing Sanitary Manholes is full compensation for providing and installing all required materials.

59. Internal Manhole Sealing System, SPV.0060.47.

A Description

This special provision describes furnishing and installing internal sanitary manhole seals as shown on the plans and hereinafter provided.

B Materials

Frame seals shall consist of a flexible internal rubber sleeve and stainless steel expansion bands as manufactured by Cretex Specialty Products and conforming to the following requirements:

- Rubber Sleeve - The flexible rubber sleeve shall be extruded or molded from a high grade rubber compound conforming to the applicable material requirements of ASTM C-923, with a minimum 1500 psi tensile strength, maximum 18% compression set and a hardness (durometer) of 48±5.

  The rubber sleeve shall be double, triple or quadruple pleated with a minimum unexpanded vertical height of 8 inches and a minimum thickness of 3/16 inches. The top and bottom section of the sleeve that compresses against the manhole frame casting and the chimney/cone shall have an integrally formed expansion band recess and a series of sealing fins to facilitate a watertight seal. These sealing fins shall have teardrop holes or air pockets to allow the sealing area to conform to minor surface irregularities that may be encountered.

Any splice used to fabricate the sleeve shall be hot vulcanized and have a strength such that the sleeve shall withstand a 180 degree bend with no visible separation.

- Expansion Bands - The expansion bands used to compress the sleeve against the manhole shall be integrally formed from 16 gauge stainless steel conforming to the applicable material requirements of ASTM A-240 Type 304, with no welded attachments and shall have a minimum width of 1-3/4 inches.

  The bands shall have a minimum adjustment range of 2-1/2 diameter inches and the mechanism used to expand the band shall have the capacity to develop the pressures necessary to make a watertight seal. The band shall be permanently held in place with a positive locking mechanism which secures the band in its expanded position after tightening.

C Construction

The internal frame seals shall be installed in accordance to the manufacturer's instructions in order to seal the joint between the frame and the Expanded Polypropylene (EPP) rings.

D Measurement

The department will measure Internal Manhole Sealing System 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.0060.47	Internal Manhole Sealing System	Each

Payment is full compensation for furnishing all labor, equipment, material and sealant system accessories and supervision, and performing all work necessary to seal the manhole.

60. Curb Openings Special, Item SPV.0060.48.

A Description

This special provision describes furnishing and installing curb openings special at the elevations and locations shown on the plans in accordance to the pertinent provisions of standard spec 611 and as hereinafter provided.

B Materials

After verifying existing private storm drains are active, furnish Neenah Curb Openings Type R-3262-3 conforming to the requirements specified in standard spec 611.2.

C Construction
Install Curb Openings Special in accordance to standard spec 611.3. Connect from existing private storm drain to curb opening casting.

D Measurement
The department will measure Curb Openings Special as each individual curb opening special, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.48	Curb Openings Special	Each

Payment is full compensation according to standard spec 611.5.4.

61. Cover Plate Temporary Buried, Item SPV.0060.49.

A Description
This special provision describes furnishing, installing and removing a steel plate buried under temporary asphaltic surface to cover and support asphaltic pavement and traffic loading at manholes, inlets and similar structures during milling and paving operations.

B Materials
Provide a 0.5-inch minimum thickness steel plate that extends to the outside edge of the existing masonry.

Provide asphalt pavement meeting the requirements of standard spec 465.

C (Vacant)

D Measurement
The department will measure Cover Plate Temporary Buried as each individual cover plate, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.49	Cover Plate Temporary Buried	Each

Payment is full compensation for furnishing, installing, and removing the cover plates and asphaltic surface temporary; for maintaining the cover plate and asphaltic surface temporary directly above the cover plate.

The steel plates shall become the property of the contractor when no longer needed in the contract work.

62. Installing City-Furnished Street Name Signs, SPV.0060.50.

A Description
This work shall be in accordance to standard spec 637 with the following exceptions:

The City of Waukesha shall provide the contractor with the required street name signs. The contractor shall coordinate with the City prior to starting construction. The contractor shall pick up the signs at the City of Waukesha Maintenance Garage, 300 Sentry Drive, Waukesha, WI 53186. The contractor shall provide the City with a 24-hour advance notice by calling Margaret Liedtke at (262) 524-3600.

B (Vacant)

C (Vacant)

D Measurement
The department will measure Installing City-Furnished Street Name Signs as each individual sign, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.50	Installing City-Furnished Street Name Signs	Each

Payment is full compensation for providing all necessary labor and mounting hardware and installing street name signs in the locations the plans show.

63. Pre-Paving Televising Sanitary Lateral, Item SPV.0060.51; Pre-Paving Televising Sanitary Main Line, Item SPV.0090.13.

A Description
This special provision amendment describes the televising of the sanitary main line sewer and laterals after all underground work is complete but before the asphalt surface is placed. The underground work includes any activity that could potentially damage a sewer facility, but is not limited to utility installation (including third party utility work).

B Materials
The televising work shall be done in accordance to 7.1.2 in the Standard Specifications for Sewer and Water Construction in Wisconsin, 6th Edition and the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification (PACP) and Lateral Assessment and Certification Program (LACP) standards. All inspection data shall be collected using PipeTech Software by Peninsular Technologies.

C Construction

- The sewer sections, as defined by the length of pipe from center of manhole to center of manhole, shall be visually inspected by means of closed-circuit television. The inspection shall be done one section at a time and the flow in the section being inspected shall be suitably controlled to allow for a quality inspection. All inspections shall be performed in accordance to PACP standards including the specific date and time of inspection.

- The televising camera used for the inspection shall be one specifically designed and constructed for such inspection. The camera shall be a pan-and-tilt type capable of radial inspection of the top, bottom, and sides of the pipe. Lighting for the camera shall be suitable to allow a clear picture of the entire periphery of the pipe. The camera shall be operative in 100% humidity conditions. The camera, television monitor, and other components of the video system shall be capable of producing picture quality to the satisfaction of the City of Waukesha; and if unsatisfactory, equipment shall be removed and no payment will be made for an unsatisfactory inspection.

- The camera shall be moved through the line on a self-propelled transporter in either direction at a moderate rate, stopping when necessary to permit proper documentation of the sewer's condition. In no case shall the television camera be moved at a speed greater than 30 feet per minute. If, during the inspection operation, the television camera will not pass through the entire manhole section, the contractor shall set up the equipment so that the inspection can be performed from the opposite manhole. If, again, the camera fails to pass through the entire manhole section, the inspection shall be considered complete and noted as "Survey Abandoned" and no additional inspection will be required.

- The importance of accurate distance measurements is emphasized. Measurement for location of defects shall be above ground by means of a meter device. Marking on the cable, or the like, which would require interpolation for depth of manhole, will not be allowed. Accuracy of the distance meter shall be checked by use of a walking meter, roll-a-tape, or other suitable device, and the accuracy shall be satisfactory to the City of Waukesha.

- The inspection data shall be compatible with City of Waukesha's GIS and Asset Management Systems. Documentation of the television results shall be as follows:

- Television Inspection Logs: Electronic media location records shall be kept by the contractor and shall clearly show the location, by distance in 1/10 of a foot, from the center of the starting manhole to each observation during inspection. Observations shall include, but not be limited to, infiltration, service connections, unusual conditions, roots, storm sewer connections, cracks, fractures, broken pipe, presence of scale and corrosion, and other discernible features, as defined in the PACP defect codes, shall be recorded on electronic media and a copy of such records shall be supplied to the City of Waukesha.

- Digital photographs of the pipe condition and all defects shall be taken by the contractor. Photographs shall be located by distance in 1/10 of a foot, from the center of the starting manhole.

- Electronic media recordings: The purpose of electronic media recording shall be to supply a visual and audio record of problem areas of the lines that may be replayed by the City of Waukesha. Each original electronic media recording of conditions and defects shall be delivered to the City of Waukesha upon completion of a specific line section.

- The City of Waukesha requires that all inspections be performed by CCTV personnel who are trained and certified in the use of NASSCO's Pipeline Assessment and Certification Program (PACP).

- The lateral televising shall be done from the main line sewer and shall extend as far as possible towards the house and shall include a spot location with depth at the curb line and back of sidewalk.

- Any structural defects found along the main line sewer and laterals shall be immediately brought to the City of Waukesha engineer's attention for a determination of the necessary repair.

The City of Waukesha will provide maps showing the structure and section numbers to be used.

D Measurement

The department will measure Pre-Paving Televising Sanitary Lateral by each, acceptably completed. The department will measure Pre-Paving Televising Sanitary Main Line 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.0060.51	Pre-Paving Televising Sanitary Lateral	Each
SPV.0090.13	Pre-Paving Televising Sanitary Main Line	LF

Payment is full compensation for the above described work.

64. Aerial Cable Aluminum Triplex 2 AWG, Item SPV.0090.01; Aerial Cable Aluminum Quadplex 2 AWG, Item SPV.0090.02.

A Description

The work under this item consists of furnishing and installing temporary overhead lines for secondary lighting distribution as shown on the plans.

Down guys needed to provide support for existing aluminum lighting units connected to aerial cable shall be included in this item.

B Materials
The aerial cable shall consist of a triplex or quadplex assembly of two or three XLP insulated power conductors respectively with an ACSR bare messenger (for ground conductor) wire.

Where required on the plans to connect to existing underground circuiting, the contractor shall provide an appropriately sized junction box at the base of the wood pole for an above ground splice. The cable that extends to 10 feet above grade shall be appropriately protected by a plastic cable guard or conduit.

C Construction
The contractor shall install the overhead lines in a manner which is safe and in accordance to applicable codes, and shall correct excessive sag or loose connections for the length of the contract, or until removal, whichever comes first. The cable shall be a minimum of 20 feet above any roadway surface and 15 feet above other surfaces.

D Measurement
The department will measure Aerial Cable Aluminum (Type) by the linear foot of work, completed in accordance to the contract accepted.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.01	Aerial Cable Aluminum Triplex 2 AWG	LF
SPV.0090.02	Aerial Cable Aluminum Quadplex 2 AWG	LF

Payment is full compensation for furnishing and installing the wires; conduit, junction boxes; cable guards; for hardware, insulators, tie wire, splices, and circuit cuts; connections to existing lighting units and conduits; and for dead ends.

65. Removing Aerial Cable, Item SPV.0090.03.

A Description
The work under this item consists of removing aerial cable and insulators, splicing through the circuit if required at the given site, and removing materials from the site.

B (Vacant)

C Construction
Disconnect aerial cable and related appurtenances. Dispose of materials off the site.

D Measurement
The department will measure Removing Aerial Cable by the linear foot 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.0090.03	Removing Aerial Cable	LF

Payment is full compensation for removing aerial cable, conduit, and insulators as required, and, if required, for splicing through the circuit for operation.

66. Furnish and Install Water Main and Fittings 8-Inch, Item SPV.0090.04; 12-Inch, Item SPV.0090.05; 16-Inch (Class 50), Item SPV.0090.06.

A Description
The contractor shall furnish and install all 8", 12" and 16" water main and fittings including tracer wire, bedding, cover and compacted granular backfill. The contractor shall install approximately 300 linear feet of 8" Polyvinyl Chloride (Class DR-18) AWWA C-900 or Ductile Iron Pipe (Class 52) AWWA C-151 Water Main including polyethylene wrap, install approximately 1230 linear feet of 12" Polyvinyl Chloride (Class DR-18) AWWA C-900 or Ductile Iron Pipe (Class 52) AWWA C-151 Water Main including polyethylene wrap, install approximately 2760 linear feet of 16" Ductile Iron Pipe (Class 50) AWWA C-151 Water Main including polyethylene wrap. The contractor shall also provide the chlorination, flushing and pressure testing per the listed specifications. The plan profile views show the approximate depth of the existing crossing utilities, which were marked at the time of the survey, except the sanitary sewer laterals. The contractor is responsible for field verifying all existing utilities, to determine the proposed water main depth, including but not limited to the existing water mains, hydrant leads and laterals, sanitary sewer mains and laterals, storm sewers, gas mains and laterals, all electrical, telephone and fiber optic lines. Any damage that may be done to any existing utility will be the sole responsibility of the contractor. The contractor is responsible for the necessary materials, excavation, backfill, compaction and maintenance of ditches for this work.

B Materials
Furnish materials in accordance to Chapter 4 of the Waukesha Water Utility standard specifications.

C Construction
Install water main pipe and fittings in accordance to Chapter 6 of the Waukesha Water Utility standard specifications.

D Measurement
The department will measure Furnish and Install Water Main and Fittings (Size) (Type) 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.0090.04	Furnish and Install Water Main and Fittings 8-Inch	LF
SPV.0090.05	Furnish and Install Water Main and Fittings 12-Inch	LF
SPV.0090.06	Furnish and Install Water Main and Fittings 16-Inch (Class 50)	LF

Payment is full compensation for all necessary labor, materials, excavation, backfill, compaction and maintenance of trenches for this work.

67. Pavement Marking Grooved Preformed Thermoplastic Stop Line 18-Inch White, Item SPV.0090.07; Pavement Marking Grooved Preformed Thermoplastic Crosswalk 6-Inch White, Item SPV.0090.08.

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. Groove multiple boxes for Word Items.

C.5 Groove Cleaning
C.5.1 Concrete
Cooling the cutting head with water may be necessary for some applications and equipment. If cooling water is necessary, flush the groove immediately with water after cutting to remove any build-up of cement dust and water slurry. If this is not done, the slurry may harden in the groove.

If water is used in the grooving process, allow the groove to dry a minimum of 24 hours after groove cleaning, after removal of excess water, and prior to pavement marking application. Clean and dry the groove for proper application of the sealant, and placement of the pavement marking. Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove; use of the air blower does not decrease the amount of time required for the groove to dry.

C.5.2 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.5.2 Asphalt
Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove.

C.6 Preformed Thermoplastic Application
Preheat the surface if necessary based on manufacturer's recommendation.

Application of the preformed thermoplastic in the groove without sealant will be as follows:

- May 1 to September 30, both dates inclusive – the Southeast Region and the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.

- June 1 to August 31 – the Southwest Region, and the Northeast, North Central, and Northwest Regions except for the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.

Application of the preformed thermoplastic in the groove with sealant materials will be as follows:

- October 1 to April 30, both dates inclusive – the Southeast Region and the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.
- September 1 to May 31, both dates inclusive – the Southwest Region and the Northeast, North Central, and Northwest Regions, except for the ozone non-attainment or maintenance Northeast Region counties of Sheboygan, Manitowoc, Kewaunee, and Door.

The sealant must be wet.

D Measurement

The department will measure Pavement Marking Grooved Preformed Thermoplastic (Type) (Size) White in length by the linear foot of tape placed, 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.0090.07	Pavement Marking Grooved Preformed Thermoplastic Stop Line 18-Inch White	LF
SPV.0090.08	Pavement Marking Grooved Preformed Thermoplastic Crosswalk 6-Inch White	LF

Payment is full compensation for cleaning and preparing the pavement surface, and for furnishing and installing the material.

68. Concrete Curb and Gutter 66-Inch Type D, Item SPV.0090.09.

Construct the concrete curb and gutter in accordance to standard spec 601 and in accordance to the plan details.

69. Tree Root Sawing, Item SPV.0090.10.

A Description

All construction adjacent to street trees, where disturbance to the root zone may occur, shall require the severing of roots with a root cutter or saw. Cutting with a bulldozer, grader, backhoe, etc. is not acceptable. The need for and extent of tree root sawing will be determined prior to construction by a meeting between the contractor, engineer, and the City of Waukesha Forestry Office (Peter Traczek, (262) 524-3710).

B (Vacant)

C Construction
Roots shall be cut vertically and cleanly using a suitable saw to a minimum depth of 1 foot and a minimum of 1 foot outside of the excavation area where the tree is in close proximity or as directed by the engineer. Estimated lengths of tree root sawing are shown in the plans.

D Measurement
The department will measure Tree Root Sawing by the linear foot, acceptably completed. Overcuts beyond the limits as directed by the engineer and/or the forester 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.0090.10	Tree Root Sawing	LF

Payment is full compensation for the above described work.

70. Storm Sewer Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 43x68-Inch, Item SPV.0090.11.

Construct reinforced concrete horizontal elliptical storm sewer pipe in accordance to standard spec 610.

71. Replace Sanitary Sewer Laterals, SPV.0090.12.

A Description
This special provision describes replacement of existing sanitary sewer laterals by open cut between the existing sanitary sewer main and a point near the right-of-way. The actual location shall be determined by the City of Waukesha engineer to avoid obstacles such as landscaping, carriage walks, retaining walls, trees, etc.

B Materials
Laterals shall be 6” PVC pipe with gasket joints conforming to ASTM D3034 and have a dimensional ratio of SDR 35.

Stone chips are required 4-Inches under and 12-Inches over the lateral pipes as a minimum. The cost for bedding, cover, and mechanically compacted granular backfill shall be included in the linear foot of pipe being constructed.

C Construction

All lateral connections shall be reconnected to the existing fitting on the existing mainline sewer in such a manner to ensure a watertight and structurally sound connection. The replacement lateral shall also be connected to the existing lateral in a manner to ensure a watertight and structurally sound connection. Gasketed PVC connectors for PVC to PVC connections and Fernco Shielded Couplings, or City of Waukesha engineer approved equivalent, for dissimilar pipe materials shall be used at the point of connections. All lateral connections shall be considered incidental.

The grade on the lateral shall be adjusted to avoid other existing and proposed utilities. A minimum of ¼" per foot slope on the laterals is required.

All pipes must be inspected and marked prior to delivery to the job by an accredited testing laboratory. This cost shall be considered incidental.

The contractor shall be responsible for providing all pumps, conduits, and other equipment required to divert the flow of sewage around the work area. The contractor shall ensure that surcharging and backups do not occur on public and private property. The contractor shall make a temporary connection between the existing and proposed sewers and remove any diversion methods at the end of the day.

If the contractor damages any sewer or manhole during construction, the cost of the necessary repairs including any pavement repairs shall be at the contractor's expense. The method of repair shall be approved by the City of Waukesha engineer.

The contractor shall ensure that flow is not impeded and shall be responsible for removing any debris in the sewer structures and lines resulting from his work. If the sewer structure or lines require flushing by City of Waukesha crews, the cost will be assessed to the contractor.

Prior to the project, the existing sanitary sewer laterals were televised from the mainline to the property as far as possible to verify the connection status, the condition, and the location of each lateral. A depth was obtained and recorded in the vicinity of the sidewalk and the marks were surveyed by the City of Waukesha. Upon request, the City of Waukesha will relocate the laterals using the survey data for the sanitary lateral replacements.

D Measurement

The department will measure Replace Sanitary Sewer Laterals 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.0090.12	Replace Sanitary Sewer Laterals	LF

Payment is full compensation for the above described work.

72. Video Vehicle Detection System, Intersection of East Avenue and Sunset Drive, Item SPV.0105.01.

A Description

This specification describes furnishing and installing a system that detects vehicles on a roadway using only video images of vehicle traffic. This item includes all materials and labor necessary to install a completely functional vehicle detection system including but not limited to cameras, processors, video monitor, mounting hardware, power cable, and coaxial cable.

B General Requirements

B.1 System Hardware

The video detection system (VDS) shall consist of up to four video cameras, a video detection processor (VDP) capable of processing from one to four video sources, either wired or wireless, wireless video transmission receiver, receiver antenna and a pointing device.

The Video Vehicle Detection System shall consist of the Iteris Vantage Edge2 system.

B.2 System Software

The system shall include software that detects vehicles in multiple lanes using only the video image. Detection zones shall be defined using only an on board video menu and a pointing device to place the zones on a video image. Up to 24 detection zones per camera view shall be available. A separate computer shall not be required to program the detection zones.

C Functional Capabilities

C.1 System Configuration

The VDS will be deployed at locations where site conditions and roadway geometry vary. The VDS system may also be deployed at locations where existing cabinets or equipment exist. Existing site configurations will dictate the availability of cabinet space and VDS usage.

The proposed VDS shall be available in various configurations to allow maximum deployment flexibility. Each configuration shall have identical user interface for system setup and configuration. The communications protocol to each configuration shall be identical and shall be hardware platform independent. The proposed VDS shall have multiple configurations available for deployment.

Table 1. VDS Configuration

Description	No. Video Inputs	No. Video Outputs	Mounting Configuration	Power Supply Requirements
Single-Channel Rack Mounted	1	1	Rack Mount (Type 170 or NEMA TS-1, TS-2 Racks)	12/24 VDC Power From Rack
Dual-Channel Rack Mounted	2	1	Rack Mount (Type 170 or NEMA TS-1, TS-2 Racks)	12/24 VDC Power From Rack
Quad-Channel Rack Mounted	4	1	Rack Mount (Type 170 or NEMA TS-1, TS-2 Racks)	12/24 VDC Power From Rack

a. An option to have wireless video transmission between the camera sensor and VDP shall also be available from the VDS manufacturer.

b. Wired camera systems shall be able to transmit NTSC or PAL video signals, with minimal degradation, up to 1000 feet under ideal conditions.

c. Wireless camera systems shall be able to transmit an NTSC video signal, with minimal signal degradation, up to 500 feet under normal conditions and up to 900 feet under ideal electromagnetic interference conditions. Adjacent sources of electromagnetic radiation, or the absence of a direct line of sight between transmitter and receiver antennas, may result in video signal degradation.

C.2 System Interfaces

The following interfaces shall be provided for each of the configurations identified in Table 1.

a. Video Input: Each video input shall accept RS170 (NTSC) or CCIR (PAL) signals from an external video source (camera sensor or VCR). The interface connector shall be BNC type and shall be located on the front of the video processing unit. The video input shall have the capability to select 75-ohm or high impedance (Hi-Z) termination.

b. Video Lock LED: A LED indicator shall be provided to indicate the presence of the video signal. The LED shall illuminate upon valid video synchronization and turn off when the presence of a valid video signal is removed.

c. Video Output: One video output shall be provided. The video output shall be RS170 or CCIR compliant and shall pass through the input video signal. For multi-channel video input configurations, a momentary push-button shall be provided on the front panel to toggle through each input video channel. In the absence of a valid video

signal, the channel shall be skipped and the next valid video signal shall be switched. The video output shall have the capability to show text and graphical overlays to aid in system setup. The overlays shall display real-time actuation of detection zones upon vehicle detection or presence. Overlays shall be able to be turned off by the user. Control of the overlays and video switching shall also be provided through the serial communications port. The video output interface connector shall be BNC type.

d. Serial Communications: A serial communications port shall be provided on the front panel. The serial port shall compliant with EIA232 electrical interfaces and shall use a DB9 type connector. The serial communications interface shall allow the user to remotely configure the system and/or to extract calculated vehicle/roadway information. The interface protocol shall be documented or interface software shall be provided. The interface protocol shall support multi-drop or point-to-multipoint communications. Each VDS shall have the capability to be addressable.

e. Contact Closure Output : Open collector contact closure outputs shall be provided. Four (4) open collector outputs shall be provided for the single, dual or quad channel rack-mount configuration. Additionally, the VDPs shall allow the use of extension modules to provide up to 24 open collector contact closures per camera input. Each open collector output shall be capable of sinking 30 mA at 24 VDC. The open collector output will be used for vehicle detection indicators as well as discrete outputs for alarm conditions.

f. Detection LEDs: LEDs shall be provided on the front panel. The LEDs shall illuminate when a contact closure output occurs. Rack-mounted video processors shall have a minimum of four (4) LEDs. Rack-mounted extension modules shall have two (2) or four (4) LEDs to indicate detection.

g. Mouse Port: A USB mouse shall be provided on the front panel of the rack mount video processing unit. The mouse port shall not require special mouse software drivers. The mouse port shall be used as part of system setup and configuration. A mouse shall be provided with each video processor.

C.3 General System Functions

Detection zones shall be programmed via an on board menu displayed on a video monitor and a pointing device connected to the VDP. The menu shall facilitate placement of detection zones and setting of zone parameters or to view system parameters. A separate computer shall not be required for programming detection zones or to view system operation.

The VDP shall store up to three different detection zone patterns. The VDP can switch to any one of the three different detection patterns within 1 second of user request via menu selection with the pointing device.

The VDP shall detect vehicles in real time as they travel across each detection zone.

The VDP shall have an EIA232 port for communications with an external computer. The VDP EIA232 port shall be multi-drop capable.

The VDP shall accept new detection patterns from an external computer through the EIA232 port when the external computer uses the correct communications protocol for downloading detection patterns. A Microsoft Windows-based software designed for local or remote connection and providing video capture, real-time detection indication and detection zone modification capability shall be provided with the system.

The VDP system shall have the capability to automatically switch to any one of the stored configurations based on the time of day which shall be programmable by the user.

The VDP shall send its detection patterns to an external computer through the EIA232 port when requested when the external computer uses the correct communications protocol for uploading detection patterns.

The VDP shall default to a safe condition, such as a constant call on each active detection channel, in the event of unacceptable interference with the video signal.

The system shall be capable of automatically detecting a low-visibility condition such as fog and respond by placing all defined detection zones in a constant call mode. A user-selected output shall be active during the low-visibility condition that can be used to modify the controller operation if connected to the appropriate controller input modifier(s). The system shall automatically revert to normal detection mode when the low-visibility condition no longer exists.

C.4 Vehicle Detection

Up to 24 detection zones per camera input shall be supported and each detection zone can be sized to suit the site and the desired vehicle detection region.

The VDP shall provide up to 24 open collector output channels per camera input using one or more extension modules.

A single detection zone shall be able to replace multiple inductive loops and the detection zones shall be OR'ed as the default or may be AND'ed together to indicate vehicle presence on a single phase of traffic movement.

Placement of detection zones shall be done by using only a pointing device, and a graphical interface built into the VDP and displayed on a video monitor, to draw the detection zones on the video image from each video camera. No separate computer shall be required to program the detection zones.

Up to 3 detection zone patterns shall be saved for each camera within the VDP memory. The VDP's memory shall be non-volatile to prevent data loss during power outages.

The selection of the detection zone pattern for current use shall be done through a menu. It shall be possible to activate a detection zone pattern from VDP memory and have that detection zone pattern displayed within 1 second of activation.

The VDP system shall have the capability to automatically switch to any one of the stored configurations based on the time of day which shall be programmable by the user.

When a vehicle is detected within a detection zone, the corners of the detection zone shall activate on the video overlay display to confirm the detection of the vehicle.

Detection shall be at least 98% accurate in good weather conditions, with slight degradation possible under adverse weather conditions (e.g. rain, snow, or fog) which reduce visibility. Detection accuracy is dependent upon site geometry, camera placement, camera quality and detection zone location, and these accuracy levels do not include allowances for occlusion or poor video due to camera location or quality.

The VDP shall provide dynamic zone reconfiguration (DZR). DZR enables normal operation of existing detection zones when one zone is being added or modified during the setup process. The VDP shall output a constant call on any detector channel corresponding to a zone being modified.

Detection zone setup shall not require site specific information such as latitude and longitude to be entered into the system.

The VDP shall process the video input from each camera at 30 frames per second. Multiple camera processors shall process all video inputs simultaneously.

The VDP shall output a constant call for each enabled detector output channel if a loss of video signal occurs. The VDP shall output a constant call during the background learning period.

Detection zone outputs shall be configurable to allow the selection of presence, pulse, extend, and delay outputs. Timing parameters of pulse, extend, and delay outputs shall be user definable between 0.1 to 25.0 seconds.

Up to six detection zones per camera view shall have the capability to count the number of vehicles detected. The count value shall be internally stored for later retrieval through the EIA232 port. The zone shall also have the capability to calculate and store average speed and lane occupancy at bin intervals of 10 seconds, 20 seconds, 1 minute, 5 minutes, 15 minutes, 30 minutes and 60 minutes.

D Hardware

D.1 General

The VDP and extension module (EM) shall be specifically designed to mount in a standard detector rack, using the edge connector to obtain power and provide contact closure outputs.

No adapters shall be required to mount the VDP or EM in a standard detector rack. Detector rack rewiring shall not be required.

The EM shall be available to avoid the need of rewiring the detector rack, by enabling the user to plug an extension module into the appropriate slot in the detector rack. The extension module shall be connected to the VDP by a 8 wire cable with modular connectors, and shall output contact closures in accordance to user selectable channel assignments. The EM is available in 2, 4, or 24 channel configurations.

D.2 Input Power
The VDP and EM shall be powered by 12/24 volts DC. VDP power consumption shall not exceed 7 watts. The EM power consumption shall not exceed 2.5 watts.

D.3 Detection Outputs
The VDP and EM shall include detector output pin out compatibility with industry standard detector racks. The 24-channel EM shall provide output through a 37-pin “D” connector on the front panel.

D.4 Video Inputs
VDPs shall include one, two or four BNC video input connections suitable for composite video inputs. The video input shall include a switch selectable 75-ohm or high impedance termination to allow camera video to be routed to other devices, as well as input to the VDP for vehicle detection.

D.5 Video Outputs
The front of the VDP shall include one BNC video output providing real time video output that can be routed to other devices.

D.5 Mechanical and Environmental
The VDP shall operate satisfactorily in a temperature range from -34 °C to +74 °C and a humidity range from 0%RH to 95%RH, non-condensing as set forth in NEMA specifications.

The front panel of the VDP shall have detector test switches to allow the user to place calls on each channel. The test switch shall be able to place either a constant call or a momentary call depending on the position of the switch.

The front face of the VDP shall contain indications, such as LED displays, to enable the user to view real time detections for each channel of detection when the system is operational.

The VDP shall include an EIA232 port for serial communications with a remote computer. This port shall be a 9-pin "D" subminiature connector on the front of the VDP.

The VDP shall utilize non-volatile memory technology to enable the loading of modified or enhanced software through the EIA232 port and without modifying the VDP hardware.

D.6 Video Detection Camera

Video detection cameras used for traffic detection shall be furnished by the video detection processor (VDP) supplier and shall be qualified by the supplier to ensure proper system operation.

The camera shall produce a useable video image of the bodies of vehicles under all roadway lighting conditions, regardless of time of day. The minimum range of scene luminance over which the camera shall produce a useable video image shall be the minimum range from nighttime to daytime, but not less than the range 1.0 lux to 10,000 lux.

The imager luminance signal to noise ratio (S/N) shall be more than 50 dB.

The camera shall be digital signal processor (DSP) based and shall use a CCD sensing element and shall output color video with resolution of not less than 470 TV lines. The CCD imager shall have a minimum effective area of 768(h) x 494(v) pixels.

The camera shall include an electronic shutter control based upon average scene luminance and shall be equipped with an auto-iris lens that operates in tandem with the electronic shutter.

The camera shall utilize automatic white balance.

The camera shall include a variable focal length lens with variable focus that can be adjusted, without opening up the camera housing, to suit the site geometry by means of a portable interface device designed for that purpose and manufactured by the detection system supplier.

The horizontal field of view shall be adjustable from 5.4 to 50.7 degrees. This camera configuration may be used for the majority of detection approaches in order to minimize the setup time and spares required by the user. The lens shall be a 10x zoom lens with a focal length of 3.8mm to 38.0 mm.

The lens shall also have an auto-focus feature with a manual override to facilitate ease of setup.

The camera shall incorporate the use of preset positioning that store zoom and focus positioning information. The camera shall have the capability to recall the previously stored preset upon application of power.

The camera electronics shall include automatic gain control (AGC) to produce a satisfactory image at night.

The camera shall be housed in a weather-tight sealed enclosure. The enclosure shall be made of 6061 anodized aluminum. The housing shall be field rotatable to allow proper alignment between the camera and the traveled road surface.

The camera enclosure shall be equipped with a sunshield. The sunshield shall include a provision for water diversion to prevent water from flowing in the camera's field of view. The camera enclosure with sunshield shall be less than 6" diameter, less than 18" long, and shall weigh less than 6 pounds when the camera and lens are mounted inside the enclosure.

The enclosure shall be design so that the pan, tilt and rotation of the camera assembly can be accomplished independently without affecting the other settings.

The camera enclosure shall include a proportionally controlled heater, where the output power of the heater varies with temperature, to assure proper operation of the lens functions at low temperatures and prevent moisture condensation on the optical faceplate of the enclosure.

The glass face on the front of the enclosure shall have an anti-reflective coating to minimize light and image reflections.

The glass face shall also employ a special coating to minimize the buildup of environmental debris such as dirt and water.

When mounted outdoors in the enclosure, the camera shall operate satisfactorily in a temperature range from -34 °C to +60 °C and a humidity range from 0% RH to 100% RH. Measurement of satisfactory video shall be based upon VDP system operation.

The camera shall be powered by 120-240 VAC 50/60 Hz. Power consumption shall be 45 watts or less under all conditions. An optional DC power configuration shall be available for 12 VDC operation.

Recommended camera placement height shall be 33 feet (or 10 meters) above the roadway, and over the traveled way on which vehicles are to be detected. For optimum detection the camera should be centered above the traveled roadway. The camera shall view approaching vehicles at a distance not to exceed 350 feet for reliable detection (height to distance ratio of 10:100). Camera placement and field of view (FOV) shall be unobstructed and as noted in the installation documentation provided by the supplier.

The camera enclosure shall be equipped with separate, weather-tight connections for power and video cables at the rear of the enclosure. These connections may also allow diagnostic testing and viewing of video at the camera while the camera is installed on a mast arm or pole using a lens adjustment module (LAM) supplied by the VDP supplier. Video and power shall not reside within the same connector.

The video signal shall be fully isolated from the camera enclosure and power cabling.

D.7 Video Monitor

The monitor shall be a flat screen color video monitor with a minimum 9" diagonal picture display. It shall support EIA standards RS-170 composite video signal (1.0 v p-p, 75 OHM).

It shall have a resolution of 900 lines at center. Video bandwidth shall be >11 MHz. Loop through connectors shall be provided, and both input and output connectors shall be BNCs.

The monitor power source shall be 120 VAC +/- 10%, 60 Hz. Power consumption shall not be greater than 18 W. Ambient operating temperature shall be +50 to +122 degrees Fahrenheit.

Located on the front panel, the controls shall be on/off, contrast, bright, vertical hold, and horizontal hold. Rear panel shall have controls for vertical size, vertical linearity and scan switch.

Dimensions shall not exceed 9" (W), 10" (H), and 7" (D). Weight shall not exceed 10 pounds.

D.8 Coaxial Cable
The coaxial cable to be used between the camera and the VDP in the traffic cabinet shall be Belden 8281. This cable shall be suitable for installation in conduit or overhead with appropriate span wire. BNC plug connectors should be used at both the camera and cabinet ends. The coaxial cable, BNC connector, and crimping tool shall be approved by the supplier of the video detection system, and the manufacturer's instructions must be followed to ensure proper connection.

D.9 Power Cable
The power cabling shall be 16 AWG three conductor cable with a minimum outside diameter of 0.325 inch and a maximum diameter of 0.490 inch. The cabling shall comply with the National Electric Code, as well as local electrical codes. Cameras may acquire power from the luminaire if necessary.

E. Installation
The video detection camera shall be installed by factory-certified installers as recommended by the supplier and documented in installation materials provided by the supplier. Proof of factory certification shall be provided.

F Warranty
The supplier shall provide a three-year warranty on the video detection system.

During the warranty period, technical support shall be available from the supplier via telephone within 4 hours of the time a call is made by a user, and this support shall be available from factory-certified personnel or factory-certified installers.

During the warranty period, updates to VDP software shall be available from the supplier without charge.

G Maintenance and Support
The supplier shall maintain an adequate inventory of parts to support maintenance and repair of the video detection system. These parts shall be available for delivery within 30 days of

placement of an acceptable order at the supplier's then current pricing and terms of sale for said parts.

The supplier shall maintain an ongoing program of technical support for the video detection system. This technical support shall be available via telephone, or via personnel sent to the installation site upon placement of an acceptable order at the supplier's then current pricing and terms of sale for onsite technical support services.

Installation or training support shall be provided by a factory-authorized representative and shall be a minimum IMSA-Level II Traffic Signal Technician certified.

All product documentation shall be written in the English language.

H Measurement

The department will measure Video Vehicle Detection System (Intersection) as each individual unit, acceptably completed per intersection.

I Payment

The department will pay for measured quantities at the contract lump sum price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.01	Video Vehicle Detection System, Intersection of East Avenue and Sunset Drive	LS

Payment is full compensation for furnishing and installing control units, cameras, cabling, mounting brackets, testing and setting up the system.

73. Emergency Vehicle Preemption System, Intersection of East Avenue and Sunset Drive, Item SPV.0105.02.

A Description

This work shall consist of furnishing and installing an Emergency Vehicle Preemption (EVP) System at a single intersection, as shown on the plans and as hereinafter provided.

B Materials and Construction Methods

The Emergency Vehicle Preemption System shall include GTT Opticom discriminator Model 454, Model 711 detectors, and Model 138 detector cable. This equipment shall be furnished and installed by the contractor.

Detectors shall be mounted on the mast arms and signal poles as shown on the plans.

The traffic signal mast arms and poles shall be drilled, and tapped to accommodate the mounting of the detector units as shown in the Plans. The installation method shall be approved by the city traffic engineer.

In the event, at installation, a noticeable obstruction is present in line with the detector, the contractor shall be obligated to advise the engineer before installation.

Unless otherwise directed by the city, the detector shield tube shall be installed with the drain hole at the bottom.

There shall be no detector cable splices from the detector assembly to the controller terminations.

The EVP detector cables shall be routed to the controller. Each lead shall be appropriately marked as to which street or avenue it is associated. The contractor will perform all terminations inside the cabinet.

The EVP as specified and shown in the Plans shall be complete in place, tested, and in full operation.

C Measurement

The department will measure Emergency Vehicle Preemption System (Intersection) as a lump sum unit of work, acceptably completed in place per intersection.

D Payment

The department will pay for measured quantities at the contract lump sum price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.02	Emergency Vehicle Preemption System, Intersection of East Avenue and Sunset Drive	LS

Payment is full compensation for furnishing and installing all equipment, cabling, necessary additional items, testing and setting up the system.

74. Remove Traffic Signals and Street Lighting, Intersection of East Avenue and Sunset Drive, Item SPV.0105.03.

A Description

This special provision describes the removing of above- and under-ground existing traffic signal equipment at the signalized project intersections, including concrete bases and pull boxes where required.

This item also includes all other non-itemized materials, labor, and tools required to create completely functional traffic signal installations as shown in the plans, including modifying existing traffic signal interconnect.

B (Vacant)

C Construction
Arrange for the removal of the traffic signal equipment after receiving approval from the engineer that the existing equipment can be removed.

Items identified in the plans to be salvaged shall be returned to the City of Waukesha. Pull box lids and rims shall be removed and returned to the City of Waukesha. Corrugated pull box bodies, concrete bases, and all conductors and wire shall be removed and properly disposed of. Conduit shall be removed or abandoned in place. Conduit may be abandoned in place only if it does not interfere with new construction or present a risk of damage to newly constructed items.

All work shall be in accordance to the latest Standard Specifications, City of Waukesha Standards, and the plans.

D Measurement
The department will measure Remove Traffic Signals and Street Lighting, (Intersection) 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.0105.03	Remove Traffic Signals and Street Lighting, Intersection of East Avenue and Sunset Drive	LS

Payment is full compensation for removing and disassembling traffic signals and street lighting, scrapping of some materials, disposing of scrap material, and for delivering the indicated materials to the City.

75. Abandon Valve Boxes and Manholes, Item SPV. 0105.04.

A Description
The contractor shall abandon all water valve boxes and manholes which serve valves no longer in service, where indicated by the plans or designated by the engineer.

B (Vacant)

C Construction
The contractor shall remove the entire valve box including the base section for all valve boxes. For all manholes, the contractor shall remove the cone top section and structure walls to a minimum depth of four feet. The contractor shall backfill all openings with granular backfill.

D Measurement
The department will measure Abandoned Valve Boxes and Manholes as a lump sum unit of work, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.04	Abandon Valve Boxes and Manholes	LS

Payment is full compensation for all necessary labor, materials, excavation, backfill, compaction and maintenance of ditches for this work.

76. Temporary Vehicular Video Detection System for Intersections, Sunset Dr. and S. East Ave., Item SPV.0105.05.

A Description

This work shall consist of furnishing, installing and placing into operation a temporary vehicular video detection system (VVDS) as shown on the plans, and as directed by the engineer in the field.

B Materials

This specification sets forth the minimum requirements for a system that detects vehicles on a roadway by processing video images and providing detection outputs to a traffic signal controller. The materials shall also include all brackets, mounting hardware, cable, terminations, interface panels, and all other incidentals for the installation of the video detection equipment. The cable furnished and installed must be suitable for aerial applications if installed on the temporary traffic signal span wire. This equipment shall meet the NEMA environmental, power and surge ratings as set forth in NEMA TS2 specifications.

All video detection equipment, components, and terminations supplied under this item shall be fully compatible with the temporary traffic signal controller supplied for the project. The system architecture shall fully support Ethernet networking of system components. All required interface equipment needed for transmitting and receiving data and video shall be provided with the VVDS.

The video detection system shall optimally detect vehicle passage and presence when the camera is mounted 30-feet or higher above the roadway, when the camera is adjacent to the desired coverage area, and when the distance to the farthest detection zone locations are not greater than 10 times the mounting height of the camera. The recommended deployment geometry for optimal detection also requires that there be an unobstructed view of each traveled lane where detection is required. Although optimal detection may be obtained when the camera is mounted directly above the traveled lanes, the camera shall not be required to be directly over the roadway. The camera shall be able to view either approaching or receding traffic or both in the same field of view. The camera placed at a mounting height that minimizes vehicle image occlusion shall be able to simultaneously monitor a maximum of 6 traffic lanes when mounted at the road-side or up to 8 traffic lanes when mounted in the center with 4 lanes on each side.

The video detection system shall provide flexible detection zone placement anywhere and at any orientation within the camera field of view. Preferred detector configurations shall be detection zones placed across lanes of traffic for optimal count accuracy, detection zones placed parallel to lanes of traffic for optimal presence detection accuracy of moving or stopped vehicles. Detection zones shall be able to be overlapped for optimal road coverage.

C Construction

The temporary vehicular video detection system shall be installed by supplier factory-certified installers and as recommended by the supplier and documented in installation materials provided by the supplier.

The cameras shall be mounted to a luminaire arm, monotube arm, traffic signal pole, or other configuration as determined by the engineer a minimum of five days prior to installing the cameras.

The contractor shall install the cameras, the modular cabinet interface unit, the communication interface panel, LCD monitor, cable, and all other incidentals required to complete VVDS per the manufacturer's recommendations and as directed by the EFU. Incidentals may include, but not be limited to, brackets, adjustable camera mounts, rubber nipples, cable ties, solder, shrink tube, etc.

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.

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 of construction.

D Measurement

The department will measure Temporary Vehicular Video Detection System for Intersections (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 items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.05	Temporary Vehicular Video Detection System for Intersections, Sunset Dr. and S. East Ave.	LS

Payment is full compensation for furnishing and installing the temporary vehicular video detection system, including cameras, cabling, mounting brackets, mounting hardware, terminations, interface panels, monitor, testing and set up; for periodic checking and resetting of video detection zones; for periodic cleaning for dirt and dust build-up; and for removing all equipment at the completion of the project.

77. Temporary EVP System, Sunset Dr. and S. East Ave., Item SPV.0105.06.

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 Waukesha system and users. Contact the City of Waukesha Engineering Division – Traffic [Mike Grulke; (262) 524-3590; 130 Delafield St., Waukesha, WI; mgrulke@ci.waukesha.wi.us] 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. 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. 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.

Remove the temporary EVP system upon project completion.

Provide the engineer 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.0105.06	Temporary EVP System Sunset Dr. and S. East Ave.	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 removing the temporary EVP system; and for cleaning up and properly disposing of waste.

78. Concrete Sidewalk Stamped and Colored 4-Inch, Item SPV.0165.01.

A Description

This special provision describes constructing stamped and colored concrete sidewalk at locations shown on the plan and as hereinafter provided. Perform this work in accordance to the requirements of standard spec 602, except as hereinafter provided.

B Materials

The concrete used for Concrete Sidewalk Stamped and Colored shall conform to standard spec 501, Concrete.

Use low chert concrete for the colored concrete.
The concrete sidewalk stamped and colored shall meet the following requirements:

Color:	Dark Redwood with Charcoal Release
Method of Application:	Integral Color
Stamp Pattern:	Running Bond Old Brick

The engineer may, at their discretion, change the requested color and/or stamp pattern.

A skid resistant sealant shall be applied.

Curing and sealing materials shall be compatible with colored concrete as recommended by the manufacturer.

The coloring of the concrete shall be full depth color, not surface application.

C Construction

The stamped colored concrete shall be 4-inches thick.

The contractor shall provide stamps with a brick pattern to perform the work and shall be considered incidental to the stamped colored concrete. The stamps purchased shall become the property of the contractor.

Prior to work commencing for colored concrete construction, provide one field-cast mockup of full size panels of stamped and colored concrete to demonstrate typical pattern, texture, surface finish, color and standard of workmanship. The size and location of the mock up to be built will be determined by the engineer. Notify the engineer seven days in

advance of dates and times when mockup will be constructed. Demolish and remove mock ups when directed by the engineer.

Colored concrete shall be produced in a minimum of 1 cubic yard increments.

Water/cement in mix design shall be consistent to maintain consistent color.

Colored concrete mixes for the entire project shall be consistent. If the contractor chooses to provide mixes with High-Early-Strength, then all colored concrete shall be provided as High-Early-Strength. Switching from regular colored concrete to High-Early-Strength colored concrete or High-Early-Strength colored concrete to regular colored concrete will not be allowed.

Once the contractor begins pouring the colored concrete on the project, the contractor will not be allowed to switch cement in the colored concrete because it will affect the color consistency of the colored concrete.

Any additional water shall be approved by the engineer prior to its use.

Blessing of the colored concrete with water once concrete is in place will not be allowed. If water is added to the surface of the colored concrete surface once concrete is in place, the colored concrete will be rejected and will need to be removed.

Evaporation reducers will be used throughout the construction of the colored concrete.

Cover and protect adjacent construction and concrete from discoloration and spillage during placement of colored concrete, application of release agents, and sealers.

Apply liquid release agent uniformly onto the colored concrete while it is still in a plastic state to provide clean release of imprinting tools from the concrete surface without lifting imprint or tearing concrete.

While initially finished concrete is in plastic state, accurately align and place imprinting stamps. Contractor will need to monitor the setting up of the concrete. Once the concrete has set to the point it can be stamped, begin stamping. Uniformly pound or press imprint tools into concrete to produce required pattern and depth of imprint on concrete surface. Remove platform tools immediately. Hand texture and stamp edges and surfaces unable to be imprinted by stamp mats. Touch up imperfections such as broken corners, double imprints and surface cracks.

Stamp concrete consistently so that stamped concrete does not have a vertical elevation difference of ½-inch or depressions in concrete capable of causing ponding water or ice.

Hand stamp edges and surfaces that are unable to be imprinted by platform tools, use texture mats and single blade hand stamps to match plat form tool stamping pattern. Finished imprinting shall match preconstruction mock-ups.

After concrete has been stamped and the sheen has left the surface of the colored concrete, the colored concrete shall be sealed. Apply per manufacturer's recommendations. Two coats of seal shall be applied. Apply second coat after first coat has dried. Do not seal over blemishes or imperfections caused by rainfall or protection materials.

In general, colored concrete must be protected from premature drying and excessive cold or hot temperatures. Apply evaporation retarders to concrete surfaces only if hot, dry, or windy conditions cause a moisture loss approaching 0.20 lb/sf/hr before and during initial finishing operations. Apply according to manufacturer's written instructions after placing and screeding and during initial floating operations.

Protect the colored concrete from damage. Do not permit construction traffic or material storage on colored concrete. Exclude other foot traffic from colored concrete for at least five days after placement.

Remove and replace adjacent concrete that is discolored to the approval of the engineer.

D Measurement

The department will measure Concrete Sidewalk Stamped and Colored 4-Inch by the 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.0165.01	Concrete Sidewalk Stamped and Colored 4-Inch	SF

Payment is full compensation for furnishing and installing the concrete coloring agent; constructing the colored and stamped surfaces; preparing a representative sample; and for properly removing of surplus materials.

79. Test Rolling, Item SPV.0170.01.

A Description

This special provision describes the testing of the stability of the finished earth subgrade by rolling with a tri-axle dump truck, the restoration of any soft or yielding areas evidenced by the test rolling, and retesting as determined by the engineer.

B Equipment

Fully load a tri-axle dump truck to within 3 tons of the vehicle legal load limit and provide a minimum gross vehicle weight of 30 tons. Uniformly inflate all tires to the pressure recommended by the manufacturer for the applicable wheel load.

C Construction
Completely compact and shape the subgrade to approximate grade and cross-section; but not yet staked for blue top grades for areas to be tested. Test roll at normal walking speed under the direction of the engineer or his representative.

Roll the earth subgrade at a width equal to the finished base course width. Make multiple passes throughout the length of the subgrade test area. Center each pass on a proposed lane or applicable shoulder. When the shoulder width is less than 8 feet, the engineer will determine the number and location of passes required such that any wheel track will be within 3 to 4 feet of the previous adjacent wheel track.

Repair and consolidate any soft or yielding areas or depressions evidenced under the action of the test rolling to withstand retesting. Excavate and replace any unstable material from the roadbed with selected materials. Correct any yielding subgrade areas discovered during the test rolling operations prior to blue top staking and finish grading operations. Perform corrective work in accordance to the standard specifications.

D Measurement
The department will measure Test Rolling by the station along the roadway centerline or reference line, acceptably completed. The department will measure two or more separate roadways by the station along each separate roadway as designated on the plans.

E. Payment
The department will pay for measured quantities at the contract unit price under the following item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0170.01	Test Rolling	STA

Payment is full compensation for performing the Test Rolling; for any preparation of the subgrade, including the furnishing and incorporation of water, if required; for retesting as determined by the engineer and for restoration of the subgrade.

80. Geogrid Reinforcement, Item SPV.0180.01.

A Description
This special provision describes furnishing and installing geogrids for subgrade stabilization, base reinforcement, or pavement structure applications in accordance to the plans, standard spec 645, and as hereinafter provided.

B Materials
Provide geogrid that consists of either single or joined multiple layers of a uniform rectangular grid of bonded, formed, or fused polymer tensile strands crossing with a nominal right angle orientation. The polymer shall consist of polyester, polypropylene, polyamide, or polyethylene. The grid shall maintain dimensional stability during handling, placing, and installation. The geogrid shall be insect, rodent, mildew, and rot resistant. Minimum geogrid width shall be 6.0 feet.

Provide geogrid that complies with the following physical properties:

Test	Method	Value [1]
Tensile Strength at 5% Strain, Both Principal Directions (lb/ft)	ASTM D 4595 [2]	450 min.
Flexural Rigidity Both Principal Directions (mg-cm)	ASTM D 1388 [3]	150,000 min.
Aperture Area (in^2)	Inside Measurement [4]	5.0 max
Aperture Dimension (in)	Inside Measurement [4]	0.5 min.

All numerical values represent minimum/maximum average roll values, i.e. the average minimum test results on any roll in a lot shall meet or exceed the minimum specified value.

The tensile strength (T) of a joined multi-layered geogrid shall be computed using the following equation:

$$T = n(f)t$$

where

n = the number of individual layers in the joined multi-layered geogrid,

t = the tensile strength of a single layer of geogrid as determined using testing method ASTM D4595, and

f = reduction factor based on the number of layers comprising the multi-layered system and determined by the equation f=1.00 - [0.04(n - 1)].

Values shall be determined by Option "A" (Cantilever Test) of testing method ASTM D1388 using test specimens that are 36 inches ±0.04 inch long. Test specimen widths for differing geogrids shall be variable and equal to 1 element plus ½ the aperture width on both sides of that element. An element is defined as the minimum number of parallel strands that form a distinguishable repeating pattern.

Aperture Area and Aperture Dimension for joined multi-layer geogrids shall be determined based on measurement of a single layer of the geogrid.

Protect the geogrid from ultraviolet radiation and from damage due to shipping and handling. Keep the geogrid dry until it is installed. The geogrid rolls shall be clearly marked to identify the material contained.

Deliver a sample of the geogrid material to the engineer at least 10 days prior to its incorporation into the work. At the same time, furnish a manufacturer's Certified Report of Test or Analysis that verifies that the geogrid delivered for use on the work meets the

above requirements. Samples of geogrid for test purposes will be obtained from the job site for each 10,000 square yards or portions thereof used on the contract.

C Construction

Prior to placement of the geogrid, bring the indicated placement surface to the required lines, grades, and dimensions as shown on the plans. Smooth and shape the surface to eliminate any rocks, clods, roots, or other items that may cause damage to the geogrid during placement or covering.

Place the geogrid on the prepared surface at the locations and to the limits as shown on the plans. After placement, pull the geogrid taut and secure it using pins, clips, staples, or other devices to prevent movement or displacement. Place parallel strips of geogrid with a minimum overlap of 24 inches. Lap butt joints between roll ends a minimum of 12 inches. Fasten all lapped sections together by using ties, straps, clips, or other devices to develop a secure joint that meets the approval of the engineer. No vehicles or construction equipment shall be permitted to operate directly on the geogrid.

Cover small rips, tears, or defects in the geogrid with an additional section of geogrid; secure the additional geogrid in place so that it overlaps the damaged area by at least 3 feet in all directions. Remove and replace geogrid sections with large rips, tears, defects, or other damage at the direction of the engineer. All costs to repair or replace damaged or defective geogrid shall be the responsibility of the contractor.

After placement, cover the geogrid to the indicated depth with the type of material required on the plans or in the special provisions. Placing, spreading, and compacting of this material shall comply with the applicable sections of the standard specifications or special provisions except that the initial lift of material placed on the geogrid must be at least 4 inches. Place, spread, and compact the required backfill material so that the geogrid is not displaced or damaged. The engineer may require changes in equipment and/or operations to prevent such damage or displacement.

D Measurement

The department will measure Geogrid Reinforcement by the square yard of surface area upon which the geogrid has been placed, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0180.01	Geogrid Reinforcement	SY

Payment is full compensation for furnishing, transporting, and installing the geogrid; furnishing and installing all devices and materials necessary to join or secure the geogrid in place.

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 __3__ *(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 __2__ *(number)* TrANS Apprentice(s) be utilized on this contract.

3) The maximum duration of reimbursement is two years as a TrANS graduate plus time in apprentice status.

4) If a TrANS program is not available in the contractor's area and another training program is utilized, payment of On-the-Job Training hours may be approved by the Wisconsin Department of Transportation (WisDOT) if the training program meets the established acceptance criteria. Only On-the-Job Training Hours accumulated after WisDOT approval will be reimbursed as specified under Items ASP.1T0G and ASP.1T0A. For more information, contact the Disadvantaged Business Enterprise Office at the phone numbers listed above.

5) WisDOT reserves the right to deny payments under items ASP.1T0G and ASP.1T0A if the contractor either fails to provide training or there is evidence of a lack of good faith in meeting the requirements of this training special provision.

I. RATIONALE AND SPECIAL NOTE

The $5.00 per hour now being paid for TrANS placements is intended to cover the duration of two years to allow for reaching entry-level laborer status. An additional incentive, the $5.00 rate, would promote movement into the underutilized skilled trades' apprenticeships and applies until the individual completes their apprenticeship. These incentives benefit TrANS candidates by giving them a better opportunity to enter a skilled trade; benefits contractors who will be assisted in meeting their EEO profiles and goals; and benefits the public who will see the program reinforce larger public-private employment reform in Wisconsin. The pool of TrANS graduates was created for the purpose of addressing underutilization in the skilled trades, an objective that is further reinforced by a parallel retention pilot program, known as the Companywide Reporting. *Whether or not reimbursement is involved, the WisDOT reassures contractors who are in the Companywide Program that TrANS placements still contribute toward fulfilling the new hire goal of 50% women and minorities.* Based on data administered by United States Department of Labor (US DOL), the highway skilled trades remain underutilized for women statewide (less than 6.9%); and for minorities in all counties (% varies by county).

NOTE: *Unless using other advancement strategies, contractors are encouraged to use some or all of this monetary incentive to offset the cut in hourly wages an individual may incur when entering an apprenticeship if the full general laborer hourly rate has been previously paid. No special accounting measures are required.*

II. IMPLEMENTATION

The implementation of ASP 1 is intended to cover only the amount of time it takes for underutilization to be resolved across the trades. This will be measured annually at the county and/or state levels using data administered by WisDWD in relation to goals set by the USDOL-

OFCCP. With appropriate state and federal approvals, we may also do some measurement at the company level.

It is the contractor's responsibility to note on their Certified Payrolls if their employee is a TrANS graduate or a TrANS apprentice. The District EEO Coordinators utilize the information on the Certified Payrolls to track the hours accumulated by TrANS Graduates and TrANS apprentices on WisDOT contracts. Payment under this ASP 1 is made based on the hours recorded off of the Certified Payrolls. Tracking may eventually include improved linkages with the WisDWD apprentice database, information from company and committee level sources.

TrANS is nondiscriminatory by regulation, and is a tool for optional use by contractors to address the underutilization of women and minorities as laborers and apprentices in our industry's skilled trades.

IV. *TRANS TRAINING*

As part of the contractor's equal employment opportunity affirmative action program, training shall be provided to employees enrolled in apprenticeship and on-the-job training programs as follows:

The contractor shall provide on-the-job training aimed at developing full journey workers in the type of trade or job classifications involved. In the event the contractor subcontracts a portion of the contract work, the contractor shall determine how many, if any, of the trainees are to be trained by the subcontractor provided, however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this training special provision is made applicable to such subcontract.

Training and upgrading of minorities and women toward journey workers status is a primary objective of this training special provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority trainees and women trainees); to the extent such persons are available within a reasonable area of recruitment. The contractor will be given an opportunity and will be responsible for demonstrating the steps that they have taken in pursuance thereof, prior to determination as to whether the contractor is in compliance with this training special provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which they have successfully completed a training course leading to journey workers status or in which they have been employed as a journey worker. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used, the contractor's records should document the findings in each case.

V. APPRENTICESHIP TRAINING

The Federal Highway Administration's (FHWA) policy is to require full use of all available training and skill improvement opportunities to assure increased participation of minority groups, disadvantaged persons and women in all phases of the highway construction industry. The FHWA On-the-Job Training (OJT) Program requires the State transportation agencies (STAs) to establish apprenticeships and training programs targeted to move women, minorities, and disadvantaged individuals into journey-level positions to ensure that a competent workforce is available to meet highway construction hiring needs, and to address the historical under-representation of members of these groups in highway construction skilled crafts.

The OJT Supportive Services (OJT/SS) Program was established in Title 23 Code of Federal Regulations (CFR), Part 230) to supplement the OJT program and support STA training programs by providing services to highway construction contractors and assistance to highway construction apprentices and trainees. The primary objectives of OJT/SS are:

(1) To increase the overall effectiveness of the State highway agencies' approved training programs.
(2) To seek other ways to increase the training opportunities for women, minorities, and disadvantaged individuals.

The STAs are responsible for establishing procedures, subject to the availability of Surface Transportation and Bridge Funds under 23 U.S.C. §140(b*)* (Nondiscrimination), for the provision of supportive services with respect to training programs approved under 23 CFR, Part 230(a*)* (Equal Employment Opportunity on Federal and Federal-aid Construction Contracts – including Supportive Services).

The contractor and subcontractor shall maintain records to demonstrate compliance with these apprenticeship requirements. Reasonable exemptions and modifications to and from any or all of these requirements will be determined by the Wisconsin Department of Transportation-Civil Rights Office. A request for an exemption or modification, with justification, shall be made in writing, addressed to WisDOT Civil Rights Office, 4802 Sheboygan Avenue, P.O. Box 7965, Rm. 451, Madison, WI 53707.

ADDITIONAL SPECIAL PROVISION 3
DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

1. Description

General

a. The disadvantaged business enterprise (DBE) requirements of 49 CFR Part 26 apply to this contract. The department's DBE goal is shown on the cover of the bidding proposal. The contractor can meet the specified contract DBE goal by procuring services or materials from a DBE or by subcontracting work to a DBE. The department calculates the DBE participation as the dollar value of DBE participation included in the bid expressed as a percentage of the total contract bid amount.

b. Under the contract, the contractor agrees to provide the assistance to participating DBE's in the following areas:

   i. Produce accurate and complete quotes.
   ii. Understand highway plans applicable to their work.
   iii. Understand specifications and contract requirements applicable to their work.
   iv. Understand contracting reporting requirements.

c. The department encourages the contractor to assist and develop DBE firms to become fully knowledgeable contractors to successfully perform on its contracts.

d. For information on the disadvantaged business program, visit the department's Civil Rights and Compliance Section website at:

   http://www.dot.wisconsin.gov/business/engrserv/dbe-main.htm

2. Definitions

a. Interpret these terms, used throughout this additional special provision, as follows:

   i. **Bid Percentage:** The DBE percentage indicated in the bidding proposal at the time of bid.
   ii. **DBE:** A disadvantaged business enterprise (DBE) certified as a DBE by the department and included on the department's list of certified DBE's who are determined to be ready, willing and able.
   iii. **DBE goal:** The amount of DBE participation expected in the contract as shown on the cover of the Highway Work Proposal.
   iv. **Discretionary Goal:** A contractor assigned DBE goal, typically abbreviated as “Disc” on the cover of the Highway Work Proposal, which is enforced as committed.
   v. **Manufacturer:** A firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract.
   vi. **Supplier:** A firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment required under the contract are bought, kept in stock, and regularly sold or leased to the public.
   vii. **Voluntary Achievement:** The amount of DBE participation achieved and reported in the contract in excess of the assigned goal.

3. DBE Percentage Required at Bid Submission

Indicate the bid percentage (i.e. 0% through 100%) of DBE participation on the completed bidding proposal, including projects with discretionary goals. For electronic submittals, show the percentage in the miscellaneous data folder, Item 3, DBE Percent. For paper submittals, show the percentage on the sheet included after the schedule of items. By submission of the bid, the bidder contractually commits to DBE participation at or above the bid percentage, or certifies that they have utilized

comprehensive good faith efforts to solicit and utilize DBE firms to meet the DBE participation requirements of this contract proposal, and that the bid percentage is reflective of these good faith efforts. If the bidder does not indicate the bid percentage of DBE participation on the completed bidding proposal, the department will consider the bid irregular and may reject the bid.

4. Department's DBE Evaluation Process

a. Documentation Submittal

Within 10 business days after the notification of contract award, the contractor is to identify, by name, the DBE firms whose utilization is intended to satisfy this provision, the items of work of the DBE subcontract or supply agreement and the dollar value of those items of work by completing the Commitment to Subcontract to DBE Form [DT1506] and all necessary attachment A forms, as well as, Good Faith Waiver Form [DT1202] and supporting documentation as necessary. If the contractor fails to furnish the required forms within the specified time, the department may cancel the award. Delay in fulfilling this requirement is not a cause for extension of the contract time and shall not be used as a tool to delay execution.

i. Bidder Meets DBE Goal

If the bidder indicates that the contract DBE goal is met, after award and before execution, the department will evaluate the Commitment to Subcontract to DBE Form DT1506 and attachment A(s) to verify the actual DBE percentage achieved. If the DBE commitment is verified, the contract is eligible for execution with respect to the DBE commitment.

ii. Bidder Does Not Meet DBE Goal

(1) If the bidder indicates a bid percentage on the Commitment to Subcontract to DBE Form [DT1506] that does not meet the contract DBE goal, the bidder must submit a Good Faith Waiver Form [DT1202] and supporting documentation. After award and before execution, the department will evaluate the bidder's DBE commitment and consider the bidder's good faith waiver request.

(2) The department will review the bidder's good faith waiver request and notify the bidder of one of the following:

a. If the department grants a good faith waiver, the bid is eligible for contract execution with respect to DBE commitment.

b. If the department rejects the good faith waiver request, the department may declare the bid ineligible for execution. The department will provide a written explanation of why the good faith waiver request was rejected. The bidder may appeal the department's rejection as allowed under 7 a. & b.

5. Department's Criteria for Good Faith Effort

The Code of Federal Regulations {CFR}, 49 CFR Part 26-Appendix A, is the guiding regulation concerning good faith efforts. However, the federal regulations do not define “good faith” but states that bidder must actively and aggressively attempt to meet the goal. The federal regulations are general and do not include every factor or effort that can be considered. As a result, each state must establish its own processes and consider the factors established in its own process when making a determination of good faith.

a. The department will only grant a good faith waiver if the bidder has made the effort, given the relevant circumstances under the contract that a bidder actively and aggressively seeking to meet the goal would make. The department will evaluate the bidder's good faith effort to determine whether a good faith waiver will be granted. The bidder must demonstrate, on the DT1202 that they have aggressively solicited DBE participation in an attempt to meet the contract DBE goal and attaining the stated DBE goal is not feasible.

b. The department, in conjunction with industry stakeholders, has developed the following guidance for contractor good faith effort. The guidance and the attached appendices provide a framework for the actions required by all parties in the processing and evaluation of bidder's total efforts to achieve the project specific DBE goal prior to the bid letting date.

c. Prime Contractors should:
   i. Document all efforts and decisions made toward achieving the DBE goal on the contract. The bidder should use the Civil Rights & Compliance System [CRCS] and related WisDOT-approved DBE outreach tools, including the Bid Express Small Business Network, to foster DBE participation on all applicable contracts.

   ii. Request quotes by identifying potential items to subcontract and solicit. Prime contractors are strongly encouraged to include in their initial contacts a single page including a detailed list of items for which they are accepting quotes, by project, within a letting. *See attached sample entitled "Sample Contractor Solicitation Letter" in Appendix A*. Prime contractors should also indicate a willingness to accept quotes in areas they are planning to perform themselves, ***as required by federal rules***. In some cases, it might be appropriate to use DBE's to do work in a prime contractor's area of specialization.

      (1) Solicit quotes through all reasonable and available means from certified DBE firms who match 'possible items to subcontract' and send copies to DBESS office, highlighting areas in which you are seeking quotes. Email is acceptable.

      (2) SBN is the preferred outreach tool. https://www.bidx.com/wi/main. Other acceptable means include postal mail, email, fax, phone call.

         a. Primes must ask DBE firms for a response in their solicitations. See *Sample Contractors Solicitation Letter* in Appendix. This letter can be included as an attachment to the SBN sub-quote request.

         b. Solicit quotes at least 10 calendar days prior to the letting date {ideally two Fridays before the letting} to allow DBE firms sufficient time to respond. Prime contractors should contact DBE firms early, asking them if they need help in putting together a quote, or helping to arrange for equipment needs, or solve other problems.

      (3) Second solicitation should take place within 5 days
         a. An email solicitation is highly recommended for this second solicitation

      (4) Upon request, provide interested DBE firms with adequate information about plans, specifications and the requirements of the contract by letter, information session, email, phone call and/or referral.

      (5) When potential exists, advise interested DBE firms on how to obtain bonding, line of credit or insurance as may be requested.

      (6) Document DBE firm's interest in quoting by taking appropriate steps to follow up initial solicitation with:
         a. Email to all prospective DBE firms in relevant work areas
         b. Phone call log to DBE firms who express interest via written response or call.
         c. Fax/letter confirmation
         d. Copy of the DBE quotes
         e. Signed copy of Bid Express SBN Record of Subcontractor Outreach Effort.

d. Evaluate DBE quotes as documentation is critical if the prime does not utilize the DBE firm's quote for any reason.
   i. Evaluate DBE firm's capability to perform 'possible items to subcontract' using legitimate reasons, including but not limited to, ***a discussion with the DBE firm*** regarding its

capabilities prior to the bid letting. If lack of capacity is your reason for not utilizing the DBE quote, you are required to contact the DBE directly regarding their ability to perform the work indicated in the UCP directory as their work area [NAICS code]; only the work area and/or NAICS code listed in the UCP directory will be counted for DBE credit. Documentation of the conversation is required.

ii. In striving to meet a DBE conscious contract goal, prime contractors are expected to use DBE quotes that are responsive and reasonable. This includes DBE quotes that are not the low quote.

iii. **Special Circumstance:** Evaluation of DBE quotes with tied bid items. "Tied quotes are the condition in which a subcontractor submits quotes including multiple areas of expertise across multiple work areas noting that the items and price are tied. Typically this type of quoting represents a cost saving to the prime but is not clearly stated as a discount; tied quotes are usually presented as 'all or none' quote to the prime." When non-DBE subcontractors submit tied bid items in their quotes to the prime, the DBE firms' quote may seem not competitive. In such a case, the following steps are taken in comparing the relevant quotes. These are qualitative examples.

(1) Compare bid items common to both quotes, noting the reasonableness in the price comparison.

(2) Review quotes from other firms for the bid items not quoted by the DBE firm to see if combining both can provide the same competitive advantage that the tied bid items offered.

e. After notification of contract award, submit **'Commitment to Subcontract'** form within the time period specified in the contract.

i. Provide the following information along with department form DT1202:

(1) The names, addresses, e-mail addresses, telephone numbers of DBE's contacted. The dates of both initial and follow-up contact. A printed copy of SBN solicitation is acceptable.

(2) A description of information provided to the DBE's regarding the plans, specifications, and estimated quantities for portions of the work to be performed by that DBE.

(3) Photocopies or electronic copies of all written solicitations to DBE's.

(4) Documentation of each quote received from a DBE and, if rejected, the reason for that rejection.

(5) Bidder attendance at any pre-solicitation or pre-bid meetings the department held to inform DBE's of participation opportunities available on the project.

f. The department's DBE Support Services Office is available by phone, email or in writing to request assistance in meeting the DBE goal:

DBE Support Services Office
6150 Fond du Lac Ave.
Milwaukee, WI 53218
Phone: 414-438-4583 / 608-266-6961
Fax: 414-438-5392
E-mail: DOTDBESupportServices@dot.wi.gov

6. Bidder's Appeal Process

a. A bidder can appeal the department's decision to deny the bidder's good faith waiver request. The bidder must provide written documentation refuting the specific reasons for rejection as stated in the department's rejection notice. The bidder may meet in person with the department if so

requested. Failure to appeal within 7 calendar days after receiving the department's written notice of rejection of a good faith waiver request under constitutes a forfeiture of the bidder's right of appeal. If the bidder does not appeal, the department may declare the bid ineligible for execution.

b. The department will appoint a representative, who did not participate in the original determination, to assess the bidder's appeal. The department will issue a written decision within 7 calendar days after the bidder presents all written and oral testimony. In that written decision, the department will explain the basis for finding that the bidder did or did not meet the contract DBE goal or make an adequate good faith effort to meet the contract DBE goal. The department's decision is final. If the department finds that the bidder did not meet the contract DBE goal or did not make adequate efforts to meet the DBE goal, the department may declare the bid ineligible for execution.

7. Department's Criteria for DBE Participation

Department's DBE List

a. The department maintains a DBE list on the department's website at

http://app.mylcm.com/wisdot/Reports/WisDotUCPDirectory.aspx

b. The DBE office is also available to assist at 414-438-4583 or 608-266-6961.

8. Counting DBE Participation

Assessing DBE Work

a. The department will only count the DBE usage towards the contract DBE goal if the DBE firm is certified as a DBE by one of the unified certification program agencies. If a firm becomes DBE certified before entering into a subcontract, the department may consider that DBE usage towards the contract goal. The department only counts the value of the work a DBE actually performs towards the DBE goal. The department assesses the DBE work as follows:

b. The department counts work performed by the DBE's own resources. The department includes the cost of materials and supplies the DBE obtains for the work. The department also includes the cost of equipment the DBE leases for the work. The department will not include the cost of materials, supplies, or equipment the DBE purchases or leases from the prime contractor or its affiliate, except the department will count non-project specific leases the DBE has in place before the work is advertised.

c. The department counts fees and commissions the DBE charges for providing a bona fide professional, technical, consultant, or managerial services. The department also counts fees and commissions the DBE charges for providing bonds or insurance. The department will only count costs the engineer deems reasonable based on experience or prevailing market rates.

d. If a DBE subcontracts work, the department counts the value of the subcontracted work only if the DBE's subcontractor is also a DBE.

e. The contractor shall maintain records and may be required to furnish periodic reports documenting its performance under this item.

f. It is the prime contractor’s responsibility to determine the DBE's ability to perform the work with the use of the UCP directory.

9. Commercially Useful Function

a. The department counts expenditures of a DBE toward the DBE goal only if the DBE is performing a commercially useful function on that contract.

b. A DBE is performing a commercially useful function if the following conditions are met:

c. For contract work, the DBE is responsible for executing a distinct portion of the contract work and it is carrying out its responsibilities by actually performing, managing, and supervising that work.

d. For materials and supplies, the DBE is responsible for negotiating price, determining quality and quantity, ordering, and paying for those materials and supplies.

10. Trucking

All bidders are expected to adhere to the department's current trucking policy posted on the HCCI website at

http://www.dot.wisconsin.gov/business/engrserv/docs/dbe-trucking-notice.pdf

11. Manufacturers and Suppliers

The department counts material and supplies a DBE provides under the contract. The department will give full credit toward the DBE goal if the DBE is a manufacturer of those materials or supplies. The department will give 60 percent credit toward the DBE goal if the DBE is merely a supplier of those materials or supplies. It is the bidder's responsibility to find out if the DBE is considered a supplier or a manufacturer before listing them on Commitment to Subcontract to DBE form DT1506.

12. DBE Prime

If the prime contractor is a DBE, the department will only count the work the contractor performs with its own forces, the work DBE subcontractors perform, and the work DBE suppliers or manufacturers perform.

13. Joint Venture

If a DBE performs as a participant in a joint venture, the department will only count that portion of the total dollar value of the contract equal to that portion of the work that the DBE performs with its own forces.

14. Mentor Protégé

a. If a DBE performs as a participant in a mentor protégé agreement, the department will credit the portion of the work performed by the DBE protégé firm

b. On every other project that the mentor protégé team identifies itself on.

c. For no more than one half of the total contracted DBE goal on any WisDOT project.

15. DBE Replacement

In the event a Prime Contractor needs to replace a DBE firm originally listed on the approved DBE Commitment Form DT1506, the Prime Contractor must comply with the department's DBE Replacement Policy located on the DBE page on the following web site:
http://www.dot.wi.gov/business/dbe/docs/policyreplacingdbe.pdf

16. Changes to the approved DBE Commitment Form DT1506

If there are any changes to the approved Commitment to Subcontract to DBE Form DT1506, the prime contractor must submit a revised DBE Commitment Form DT1506 and relevant attachment A(s) to the DBE Programs Office within 5 business days.

17. Contract Modifications

When additional opportunity is available by contract modifications, the Prime Contractor shall utilize DBE Subcontractors, that were committed to equal work items, in the original contract.

18. Payment

Costs for conforming to this Additional Special Provision (ASP) and any associated DBE requirements are incidental to the contract.

APPENDIX A
Sample Contractor Solicitation Letter Page 1
This sample is provided as a guide not a requirement

GFW SAMPLE MEMORANDUM

TO: DBE FIRMS

FROM: POTENTIAL PRIME CONTRACTOR OR MAJOR SUBCONTRACTOR

SUBJECT: REQUEST FOR DBE QUOTES

LET DATE & TIME

DATE: MONTH DAY YEAR

CC: DBE OFFICE ENGINEER

Our company is considering bidding on the projects indicated on the next page, as a prime and/or a subcontractor for the Wisconsin Department of Transportation Month- date -year Letting. Page 2 lists the projects and work items that we may subcontract for this letting. We are interested in obtaining subcontractor quotes for these projects and work categories. Also note that we are willing to accept quotes in areas we may be planning to perform ourselves as required by federal rules.

Please review page 2, respond whether you plan to quote, highlight the projects and work items you are interested in performing and return it via fax or email within 3 days. Plans, specifications and addenda are available through WisDOT at the DBE Support Services office or at the Highway Construction Contract Information (HCCI) site at http://roadwaystandards.dot.wi.gov/hcci/

Your quote should include all of the costs required to complete the items you propose to perform including labor, equipment, material, and related bonding or insurance. The quote should note items that you are DBE certified to perform, tied items, and any special terms. Page 2, with the indicated projects and items you plan to quote, should be used as a cover sheet for your quote.

Please make every effort to have your quotes into our office by time deadline the prior to the letting date. ***Make sure the correct letting date, project ID and proposal number, unit price and extension are included in your quote.*** We prefer quotes be sent via SBN but prime's alternative's are acceptable. Our office hours are include hours and days. Please call our office as soon as possible prior to the letting if you need information/clarification to prepare your quote at contact number.

If you wish to discuss or evaluate your quote in more detail, contact us after the contract is awarded. Status of the contract can be checked at WisDOT's HCCI site at http://roadwaystandards.dot.wi.gov/hcci/

All questions should be directed to:

Project Manager, John Doe,
Phone: (000) 123-4567
Email: Joe@joetheplumber.com
Fax: (000) 123- 4657

Sample Contractor Solicitation Letter Page 2

This sample is provided as a guide not a requirement

REQUEST FOR QUOTATION

Prime's Name: _____

Letting Date: _____

Project ID: _____

Please check all that apply

- ¨ Yes, we will be quoting on the projects and items listed below
- ¨ No, we are not interested in quoting on the letting or its items referenced below
- ¨ Please take our name off your monthly DBE contact list
- ¨ We have questions about quoting this letting. Please have some one contact me at this number

Prime Contractor 's Contact Person		DBE Contractor Contact Person	
Phone:		Phone	
Fax:		Fax	
Email:		Email	

Please circle the jobs and items you will be quoting below

Proposal No.	1	2	3	4	5	6	7
County							

WORK DESCRIPTION:

Clear and Grub	X		X	X		X	X
Dump Truck Hauling	X		X	X		X	X
Curb & Gutter/Sidewalk, Etc.	X		X	X		X	X
Erosion Control Items	X		X	X		X	X
Signs and Posts/Markers	X		X	X		X	X
Traffic Control		X	X	X		X	X
Electrical Work/Traffic Signals		X	X	X		X	
Pavement Marking		X	X	X	X	X	X
Sawing Pavement		X	X	X	X	X	X
QMP, Base	X	X		X	X	X	X
Pipe Underdrain	X			X			
Beam Guard				X	X	X	X
Concrete Staining							X
Trees/Shrubs	X						X

Again please make every effort to have your quotes into our office by time deadline prior to the letting date.

We prefer quotes be sent via SBN but prime's preferred alternative's are acceptable.

If there are further questions please direct them to the prime contractor's contact person at phone number.

APPENDIX B
BEST PRACTICES FOR PRIME CONTRACTOR & DBE SUBCONTRACTOR GOOD FAITH EFFORT

This list is not a set of requirements; it is a list of potential strategies

Primes

- Prime contractor open houses inviting DBE firms to see the bid "war room" or providing technical assistance
- Participate in speed networking and mosaic exercises as arranged by DBE office
- Host information sessions not directly associated with a bid letting;
- Participate in a formal mentor protégé or joint venture with a DBE firm
- Participate in WisDOT advisory committees i.e. TRANSAC, or Mega Project committee meetings
- Facilitate a small group DBE 'training session' Clarifying how your firm prepares for bid letting, evaluates subcontractors, preferred qualifications and communication methods
- Encourage subcontractors to solicit and highlight DBE participation in their quotes to you
- Quality of communication, not quantity creates the best results. Contractors should do as thorough a job as possible in communicating with DBE firms before the bid and provide any assistance requested to assure best possible bid.

DBE

- DBE firms should contact primes as soon as possible with questions regarding their quotes or bid; seven days prior is optimal.
- Continually check for contract addendums on the HCCI website through the Thursday prior to letting to stay abreast of changes.
- Review the status of contracts on the HCCI website reviewing the 'apparent low bidder' list, and bid tabs at a minimum.
- Prepare a portfolio or list of related projects and prime and supplier references; be sure to note transportation-related projects of similar size and scope, firm expertise and staffing.
- Participate in DBE office assessment programs
- Participate on advisory and mega-project committees
- Sign up to receive the DBE Contracting Update
- Consider membership in relevant industry or contractor organizations
- Active participation is a must. Quote as many projects as you can reasonably work on; quoting the primes and bidding as a prime with the department are the only ways to get work.

APPENDIX C
Types of Efforts considered in determining GFE
This list represents concepts being assessed; analysis requires additional steps

1. Whether the contractor attended any pre-solicitation or pre-bid meetings that were scheduled by WisDOT to inform DBEs of contracting and subcontracting opportunities;
2. Whether the contractor provided written notice to a reasonable number of specific DBEs that their interest in the contract was being solicited, in sufficient time to allow the DBEs to participate effectively;
3. Whether the contractor followed up initial solicitations of interest by contacting DBEs to determine if the DBEs were interested; returned the phone calls of interested DBE firms.
4. Whether the contractor selected portions of the work to be performed by DBEs in order to increase the likelihood of meeting the DBE goal;
5. Whether the contractor provided interested DBEs with adequate information about the plans, specifications and requirements of the contract;
6. Whether the contractor negotiated in good faith with interested DBEs, not rejected DBEs as unqualified without sound reasons based on a thorough investigation of their capabilities;
7. Whether the contractor made efforts to assist interested DBEs in being more competitive.
8. Whether the contractor effectively used the services of available minority community organizations: minority contractors groups, local, state, and Federal minority business assistance offices, and other organizations that provide assistance to small businesses and DBE firms.
9. Whether Prime used CRCS to identify DBE who specialize in relevant work areas.
10. Whether the contractor used available resources including contacting the DBE office, using WisDOT's website
11. Whether the contractor returned calls of firms expressing interest in a timely manner.

APPENDIX D
Good Faith Effort Evaluation Guidance
Excerpt from Appendix A of 49 CFR Part 26

APPENDIX A TO PART 26 -- GUIDANCE CONCERNING GOOD FAITH EFFORTS

I. When, as a recipient, you establish a contract goal on a DOT assisted contract, a bidder must, in order to be responsible and/or responsive, make good faith efforts to meet the goal. The bidder can meet this requirement in either of two ways. First, the bidder can meet the goal, documenting commitments for participation by DBE firms sufficient for this purpose. Second, even if it doesn't meet the goal, the bidder can document adequate good faith efforts. This means that the bidder must show that it took all necessary and reasonable steps to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not fully successful.

II. In any situation in which you have established a contract goal, part 26 requires you to use the good faith efforts mechanism of this part. As a recipient, it is up to you to make a fair and reasonable judgment whether a bidder that did not meet the goal made adequate good faith efforts. It is important for you to consider the quality, quantity, and intensity of the different kinds of efforts that the bidder has made. The efforts employed by the bidder should be those that one could reasonably expect a bidder to take if the bidder were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE contract goal. Mere pro forma efforts are not good faith efforts to meet the DBE contract requirements. We emphasize, however, that your determination concerning the sufficiency of the firm's good faith efforts is a judgment call: meeting quantitative formulas is not required.

III. The Department also strongly cautions you against requiring that a bidder meet a contract goal (i.e., obtain a specified amount of DBE participation) in order to be awarded a contract, even though the bidder makes an adequate good faith efforts showing. This rule specifically prohibits you from ignoring bona fide good faith efforts.

IV. The following is a list of types of actions which you should consider as part of the bidder's good faith efforts to obtain DBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

A. Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

B. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.

C. Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

D. (1) Negotiating in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.

(2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

E. Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non solicitation of bids in the contractor's efforts to meet the project goal.

F. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.

G. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

H. Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.

V. In determining whether a bidder has made good faith efforts, you may take into account the performance of other bidders in meeting the contract. For example, when the apparent successful bidder fails to meet the contract goal, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts, the apparent successful bidder could have met the goal. If the apparent successful bidder fails to meet the goal, but meets or exceeds the average DBE participation obtained by other bidders, you may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made good faith efforts.

Appendix E
Small Business Network [SBN] Overview

The Small Business Network is a part of the Bid Express® service that was created to ensure that prime bidders have a centralized online location to find subs - including small and disadvantaged business enterprises (DBEs). It is available for prime bidders to use as part of their Basic Service subscription. Within the Small Business Network, Prime Contractors can:

1. Easily select proposals, work types and items:
    a. After adding applicable work types, select items that you wish to quote. Enter the sub-quote quantities and add comments, if desired. Adding or removing items and work types can be done quickly. If needed, you can save the sub-quote for completion at a later time.
2. Create sub-quotes for the subcontracting community:
    a. Create sub-quotes with ease using the intuitive sub-quote creator. In seven short steps, you can rapidly create a custom sub-quote directed to all subcontractors that bid on the applicable work types. Steps include: provide contact information and sub-quote expiration date, select letting and proposal, add work types and items, specify terms and conditions, upload attachments, and select vendors.
    b. Create a sub-quote to send to subcontractors or suppliers that lists the items in a proposal that you want quoted
    c. Create an unlimited number of sub-quotes for items you want quoted, and optionally mark them as a DBE-preferred request
    d. Add attachments to sub-quotes
3. View sub-quote requests & responses:
    a. After logging into the Bid Express service, you can quickly review all of your sub-quote requests and all unsolicited sub-quote requests from subcontractors. To simplify the Small Business Network home screen, sub-quote requests can be hidden with one click if they are not applicable.
    b. View or receive unsolicited sub-quotes that subcontractors have posted, complete with terms, conditions and pricing
4. View Record of Subcontractor Outreach Effort:
    a. For each sub-quote produced, a *Record of Subcontractor Outreach Effort* is generated that shows the response statistics for a particular sub-quote. If accepted by the letting agency, this report may serve as proof of a "Good Faith" effort in reaching out to the DBE community.
    b. Easily locate pre-qualified and certified small and disadvantaged businesses
    c. Advertise to small and disadvantaged businesses more efficiently and cost effectively
    d. Document your interactions with subs/DBEs by producing an Outreach Report (may be accepted as proof of DBE outreach at the discretion of each agency)

The Small Business Network is a part of the Bid Express® service that was created to ensure that small businesses have a centralized area to access information about upcoming projects. It can help small businesses learn more about opportunities, compete more effectively, network with other contractors and subcontractors, and win more jobs.

1. View and reply to sub-quote requests from primes:
    a. After logging into the Bid Express service, you can quickly review all incoming sub-quote requests and all unsolicited sub-quotes created by your company. Receive notifications by selected work type. To simplify on the Small Business Network home screen, sub-quote requests can be filtered by work types relevant to your interests, or hidden with one click if they are not applicable.
2. Select items when responding to sub-quote requests from primes:
    a. You have the freedom to choose and price any number of items when responding to a sub-quote request. Quantities can be modified, and per-item comments are also available.
    b. View requests for sub-quotes for work that primes have posted for projects they are bidding, add your pricing, terms, and conditions, and submit completed sub-quotes to the requesting primes
    c. Add attachments to a sub-quote
3. Create and send unsolicited sub-quotes to specific contractors:
    a. Create unsolicited sub-quotes with ease using the intuitive sub-quote creator. In eight short steps, you can rapidly create a custom sub-quote directed at any number of specific vendors of your choosing. Steps include: provide contact information and sub-quote expiration date, select letting and proposal, add work types and items, specify terms and conditions, upload attachments, and select vendors.
4. Easily select and price items for unsolicited sub-quotes:
    a. After adding applicable work types, select items that you wish to quote. The extended price calculates automatically, cutting out costly calculation errors. Comments can be provided on an per-item basis as well.
    b. Create an unsolicited sub-quote that lists the items from a proposal that you want to quote, include pricing, terms and conditions, and send it to selected prime/plan holder
    c. Add attachments to a sub-quote
    d. Add unsolicited work items to sub-quotes that you are responding to
5. Easy Access to Valuable Information
    a. Receive a confirmation that your sub-quote was opened by a prime
    b. View Bid Tab Analysis data from past bids, including the high, average and low prices of items.
    c. View important notices and publications from DOT targeted to small and disadvantaged businesses
6. Accessing Small Business Network for WisDOT contracting opportunities
    a. If you are a contractor not yet subscribing to the Bid Express service, go to www.bidx.com and select “Order Bid Express.” The Small Business Network is a part of the Bid Express Basic Service.
    b. DBE firms can request a Bid Express Small Business Network Account at no cost by calling 414-438-4588

ADDITIONAL SPECIAL PROVISION 4

Payment to First-Tier Subcontractors

Within 10 calendar days of receiving a progress payment for work completed by a subcontractor, pay the subcontractor for that work. The prime contractor may withhold payment to a subcontractor if, within 10 calendar days of receipt of that progress payment, the prime contractor provides written notification to the subcontractor and the department documenting "just cause" for withholding payment.

The prime contractor may also withhold routine retainage from payments due subcontractors.

Payment to Lower-Tier Subcontractors

Ensure that subcontracting agreements at all tiers provide prompt payment rights to lower-tier subcontractors that parallel those granted first-tier subcontractors in this provision.

Release of Routine Retainage

After granting substantial completion the department may reduce the routine retainage withheld from the prime contractor to 75 percent of the original total amount retained.

When the Department sends the semi-final estimate the department may reduce the routine retainage withheld from the prime contractor to 10 percent of the original total amount retained.

Within 30 calendar days of receiving the semi-final estimate from the department, submit written certification that subcontractors at all tiers are paid in full for acceptably completed work and that no routine retainage is being withheld. The department will pay the prime contractor in full and reduce the routine retainage withheld from the prime contractor to zero when the department approves the final estimate.

This special provision does not limit the right of the department, prime contractor, or subcontractors at any tier to withhold payment for work not acceptably completed or work subject to an unresolved contract dispute.

ADDITIONAL SPECIAL PROVISION 6
ASP 6 - Modifications to the standard specifications

Make the following revisions to the standard specifications:

455.3.2.1 General

Replace paragraph two with the following effective with the December 2014 letting:

(2) Use tack material of the type and grade the contract specifies. The contractor may, with the engineer's approval, dilute tack material as allowed under 455.2.4. Provide calculations using the asphalt content as-received from the supplier and subsequent contractor dilutions to show that as-placed material has 50 percent or more residual asphalt content. Apply at 0.050 to 0.070 gallons per square yard, after dilution, unless the contract designates otherwise. The engineer may adjust the application rate based on surface conditions. Limit application each day to the area the contractor expects to pave during that day.

460.2.2.3 Aggregate Gradation Master Range

Replace paragraph one with the following effective with the December 2014 letting:

(1) Ensure that the aggregate blend, including recycled material and mineral filler, conforms to the gradation requirements in table 460-1. The values listed are design limits; production values may exceed those limits.

TABLE 460-1 AGGREGATE GRADATION MASTER RANGE AND VMA REQUIREMENTS

SIEVE	PERCENTS PASSING DESIGNATED SIEVES						
	NOMINAL SIZE						
	37.5 mm	25.0 mm	19.0 mm	12.5 mm	9.5 mm	SMA 12.5 mm	SMA 9.5 mm
50.0-mm	100						
37.5-mm	90 –100	100					
25.0-mm	90 max	90 -100	100				
19.0-mm	___	90 max	90 -100	100		100	
12.5-mm	___	___	90 max	90 -100	100	90 - 97	100
9.5-mm	___	___	___	90 max	90 -100	58 - 72	90 - 100
4.75-mm	___	___	___	___	90 max	25 - 35	35 - 45
2.36-mm	15 – 41	19 - 45	23 - 49	28 - 58	20 - 65	15 - 25	18 - 28
75-µm	0 – 6.0	1.0 - 7.0	2.0 - 8.0	2.0 - 10.0	2.0 - 10.0	8.0 - 12.0	10.0 - 14.0
% MINIMUM VMA	11.0	12.0	13.0	14.0[1]	15.0[2]	16.0	17.0

[1] 14.5 for E-0.3 and E-3 mixes.

[2] 15.5 for E-0.3 and E-3 mixes.

465.2 Materials

Replace paragraph two with the following effective with the December 2014 letting:

(2) Under the other section 465 bid items, the contractor need not submit a mix design. Furnish aggregates mixed with a type AC asphaltic material, except under the Asphaltic Curb bid item furnish PG58-28 asphaltic material. Use coarse and fine mineral aggregates uniformly coated and mixed with the asphaltic material in an engineer-approved mixing plant. The contractor may include reclaimed asphaltic pavement materials in the mixture.

Errata

Make the following corrections to the standard specifications:

501.3.2.4.4 Water Reducer

Correct errata by deleting the reference to footnote 6 for grade D concrete.

(1) Add a water reducing admixture conforming to 501.2.3. Determine the specific type and rate of use based on the atmospheric conditions, the desired properties of the finished concrete and the manufacturer's recommended rate of use. The actual rate of use shall at least equal the manufacturer's recommended rate, and both the type and rate used require the engineer's approval before use.

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://www.dot.wi.gov/business/civilrights/laborwages/index.htm

(2) Ensure that all tiers of subcontractors, as well as all trucking firms, submit their weekly certified payrolls electronically through CRCS. These payrolls are due within seven calendar days following the close of the payroll period. Every firm providing physical labor towards completing the project is a subcontractor under this special provision.

(3) Upon receipt of contract execution, promptly make all affected firms aware of the requirements under this special provision and arrange for them to receive CRCS training as they are about to begin payrolls. The department will provide training either in a classroom setting at one of our regional offices or by telephone. Contact Tess Mulrooney at 608-267-4489 to schedule the training.

(4) The department will reject all paper submittals of forms DT-1816 and DT-1929 for information required under this special provision. All costs for conforming to this special provision are incidental to the contract.

(5) Firms wishing to export payroll data from their computer system into CRCS should have their payroll coordinator send several sample electronic files to Tess two months before a payroll needs to be submitted. Not every contractor's payroll system is capable of producing export files. For details, see pages 17-22 of the CRCS System Background Information manual available online on the Labor, Wages, and EEO Information page at: http://www.dot.wi.gov/business/civilrights/laborwages/docs/crc-payroll-manual.pdf

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

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.

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XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

SEPTEMBER 2002

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

1. The Offeror's or Bidder's attention is called to the "Employment Practices" and "Equal Opportunity Clause" set forth in the Required Contract Provisions, FHWA 1273.

2. The goals and timetables for minority and female participation expressed in percentage terms for the contractor's aggregate work force in each trade, on all construction work in the covered area, are as follows:

Goals for Minority Participation for Each Trade:

County	%	County	%	County	%
Adams	1.7	Iowa	1.7	Polk	2.2
Ashland	1.2	Iron	1.2	Portage	0.6
Barron	0.6	Jackson	0.6	Price	0.6
Bayfield	1.2	Jefferson	7.0	Racine	8.4
Brown	1.3	Juneau	0.6	Richland	1.7
Buffalo	0.6	Kenosha	3.0	Rock	3.1
Burnett	2.2	Kewaunee	1.0	Rusk	0.6
Calumet	0.9	La Crosse	0.9	St. Croix	2.9
Chippewa	0.5	Lafayette	0.5	Sauk	1.7
Clark	0.6	Langlade	0.6	Sawyer	0.6
Columbia	1.7	Lincoln	0.6	Shawano	1.0
Crawford	0.5	Manitowoc	1.0	Sheboygan	7.0
Dane	2.2	Marathon	0.6	Taylor	0.6
Dodge	7.0	Marinette	1.0	Trempealeau	0.6
Door	1.0	Marquette	1.7	Vernon	0.6
Douglas	1.0	Menominee	1.0	Vilas	0.6
Dunn	0.6	Milwaukee	8.0	Walworth	7.0
Eau Claire	0.5	Monroe	0.6	Washburn	0.6
Florence	1.0	Oconto	1.0	Washington	8.0
Fond du Lac	1.0	Oneida	0.6	Waukesha	8.0
Forest	1.0	Outagamie	0.9	Waupaca	1.0
Grant	0.5	Ozaukee	8.0	Waushara	1.0
Green	1.7	Pepin	0.6	Winnebago	0.9
Green Lake	1.0	Pierce	2.2	Wood	0.6

Goals for female participation for each trade: 6.9%

These goals are applicable to all the contractor's construction work, (whether or not it is federal or federally assisted), performed in the covered area. If the contractor performs construction work in the geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The contractor's compliance with the Executive Order and the Regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order and the Regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of $10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor, employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

   As referred to in this section, the Director means:

   Director
   Office of Federal Contract Compliance Programs
   Ruess Federal Plaza
   310 W. Wisconsin Ave., Suite 1115
   Milwaukee, WI 53202

   The "Employer Identification Number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

4. As used in this notice, and in the contract resulting from solicitation, the "covered area" is the county(ies) in Wisconsin to which this proposal applies.

APRIL 2013

ADDITIONAL FEDERAL-AID PROVISIONS

NOTICE TO ALL BIDDERS

To report bid rigging activities call:

1-800-424-9071

The U.S. Department of Transportation (DOT) operates the above toll-free "hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m., Eastern Time. Anyone with knowledge of possible bid rigging, bidding collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

DECEMBER 2013

BUY AMERICA PROVISION

All steel and iron materials permanently incorporated in this project shall be domestic products and all manufacturing and coating processes for these materials from smelting forward in the manufacturing process must have occurred within the United States. Coating includes epoxy coating, galvanizing, painting and any other coating that protects or enhances the value of a material subject to the requirements of Buy America. The exemption of this requirement is the minimal use of foreign materials if the total cost of such material permanently incorporated in the product does not exceed one-tenth of one percent (1/10 of 1%) of the total contract cost or $2,500.00, whichever is greater. For purposes of this paragraph, the cost is that shown to be the value of the subject products as they are delivered to the project. The contractor shall take actions and provide documentation conforming to CMM 2-28.5 to ensure compliance with this “Buy America” provision.

http://roadwaystandards.dot.wi.gov/standards/cmm/cm-02-28.pdf#cm2-28.5

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/ws4567.doc

Effective with September 2004 Letting

WISCONSIN DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS AND TRANSPORTATION FACILITIES

SUPPLEMENTAL REQUIRED CONTRACT PROVISIONS

I. WAGE RATES, HOURS OF LABOR AND PAYMENT OF WAGES

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
WAUKESHA COUNTY

Compiled by the State of Wisconsin - Department of Workforce Development
for the Department of Transportation
Pursuant to s. 103.50, Stats.
Issued on May 1, 2014

CLASSIFICATION: Contractors are required to call the Department of Workforce Development if there are any questions reqarding the proper trade or classification to be used for any worker on a public works project.

OVERTIME: Time and one-half must be paid for all hours worked over 10 hours per day and 40 hours per calendar week and for all hours worked on Saturday, Sunday and the following six (6) holidays: January 1; the last Monday in May; July 4; the 1st Monday in September; the 4th Thursday in November; December 25; the day before if January 1, July 4 or December 25 falls on a Saturday; the day following if January 1, July 4 or December 25 falls on a Sunday.

FUTURE INCREASE: If indicated for a specific trade or occupation, the full amount of such increase MUST be added to the "TOTAL" indicated for such trade or occupation on the date(s) such increase(s) becomes effective.

PREMIUM PAY: If indicated for a specific trade or occupation, the full amount of such pay MUST be added to the "HOURLY BASIC RATE OF PAY" indicated for such trade or occupation, whenever such pay is applicable.

SUBJOURNEY: Wage rates may be available for some of the classifications indicated below. Any employer that desires to use any subjourney classification on a project MUST request the applicable wage rate from the Department of Workforce Development PRIOR to the date such classification is used on such project. Form ERD-10880 is available for this purpose and can be obtained by writing to the Department of Workforce Development, Equal Rights Division, P.O. Box 8928, Madison, WI 53708.

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
	$	$	$
Bricklayer, Blocklayer or Stonemason	35.80	16.87	52.67
Carpenter	32.93	19.99	52.92
Cement Finisher	31.56	18.53	50.09
Future Increase(s): 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	32.20	21.04	53.24
Fence Erector	22.15	1.73	23.88
Ironworker	30.52	23.47	53.99
Future Increase(s): Add $.80/hr on 6/1/2014. Premium Pay: DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.			
Line Constructor (Electrical)	38.25	17.63	55.88
Painter	21.87	11.37	33.24
Pavement Marking Operator	30.00	0.00	30.00
Piledriver	30.98	19.11	50.09
Roofer or Waterproofer	29.40	15.55	44.95
Teledata Technician or Installer	24.75	16.08	40.83
Tuckpointer, Caulker or Cleaner	34.57	16.42	50.99
Underwater Diver (Except on Great Lakes)	34.48	15.90	50.38
Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	34.43	15.24	49.67
Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	30.60	14.86	45.46
Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.78	13.63	40.41

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
	$	$	$
Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	24.86	12.97	37.83
Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.35	34.10
TRUCK DRIVERS			
Single Axle or Two Axle	34.22	19.90	54.12
Three or More Axle	25.24	15.20	40.44
Articulated, Euclid, Dumptor, Off Road Material Hauler	29.27	20.40	49.67
Future Increase(s): Add $1.75/hr on 6/1/14); Add $1.25/hr on 6/1/15); Add $1.30/hr on 6/1/16); Add $1.25/hr on 6/ 1/ 17. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm.			
Pavement Marking Vehicle	25.24	15.20	40.44
Shadow or Pilot Vehicle	34.22	19.90	54.12
Truck Mechanic	25.24	15.20	40.44
LABORERS			
General Laborer	26.06	19.43	45.49
Future Increase(s): 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	19.00	0.00	19.00
Landscaper	26.06	19.43	45.49
Future Increase(s): Add $1.60/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).			
Flagperson or Traffic Control Person	22.55	19.43	41.98
Future Increase(s): 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)	17.69	15.50	33.19
Railroad Track Laborer	13.50	3.59	17.09

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 $1.75/hr on 6/1/2014); Add $1.25/hr on 6/1/2015); Add $1.30/hr on 6/1/2016); Add $1.25/hr on 6/ 1/ 2017. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm.	36.72	20.40	57.12
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 $1.75/hr on 6/1/2014); Add $1.25/hr on 6/1/2015); Add $1.30/hr on 6/1/2016); Add $1.25/hr on 6/ 1/ 2017. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm.	36.22	20.40	56.62
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	35.72	20.40	56.12

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
	$	$	$
& A- Frames. Future Increase(s): Add $1.75/hr on 6/1/2014); Add $1.25/hr on 6/1/2015); Add $1.30/hr on 6/1/2016); Add $1.25/hr on 6/ 1/ 2017. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm.			
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 $1.75/hr on 6/1/2014); Add $1.25/hr on 6/1/2015); Add $1.30/hr on 6/1/2016); Add $1.25/hr on 6/ 1/ 2017. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm.	35.46	20.40	55.86
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 $1.75/hr on 6/1/2014); Add $1.25/hr on 6/1/2015); Add $1.30/hr on 6/1/2016); Add $1.25/hr on 6/ 1/ 2017. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm.	35.17	20.40	55.57
Fiber Optic Cable Equipment.	26.69	16.65	43.34

SUPERSEDES DECISION WI20120010
U. S. DEPARTMENT OF LABOR
(DAVIS-BACON ACT, MINIMUM WAGE RATES)

STATE: Wisconsin
GENERAL DECISION NUMBER: WI140010
DATE: August 1, 2014
DESCRIPTION OF WORK: Highways and Airport Runway and Taxiway Construction

LABORERS CLASSIFICATION:	Basic Hourly Rates	Fringe Benefits
Group 1: General Laborer; Tree Trimmer; Conduit Layer; Demolition and Wrecking Laborer; Guard Rail, Fence and Bridge Builder; Landscaper, Multiplate Culvert Assembler; Stone Handler; Bituminous Worker (Shoveler, Loader, Utility Man); Batch Truck Dumper; or Cement Handler; Bituminous Worker; (Dumper, Ironer, Smoother, Tamper); Concrete Handler	$27.06	18.73
Group 2: Air Tool Operator; Joint Sawer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated); Chain Saw Operator; Demolition Burning Torch Laborer	27.21	18.73
Group 3: Bituminous Worker (Raker and Luteman); Formsetter (Curb, Sidewalk, and Pavement); Strike Off man	27.41	18.73
Group 4: Line and Grade Specialist	27.56	18.73
Group 5: Blaster and Powderman	27.71	18.73
Group 6: Flagperson traffic control person	23.55	18.73

CLASSES OF LABORER AND MECHANICS

Bricklayer	35.37	18.47
Carpenter	30.52	14.41
Piledriverman	27.25	19.46
Ironworker	30.52	23.47
Cement Mason/Concrete Finisher	30.69	17.53
Electrician		See Page 3
Line Construction		
Lineman	39.50	32% + 5.00
Heavy Equipment Operator	37.53	32% + 5.00
Equipment Operator	31.60	32% + 5.00
Heavy Groundman Driver	26.78	14.11
Light Groundman Driver	24.86	13.45
Groundsman	21.73	32% + 5.00
Millwrights	26.32	13.98
Painter, Brush	29.52	20.04
Painter, Spray and Sandblaster	30.27	20.04
Painter, Bridge	29.87	20.04
Well Drilling:		
Well Driller	16.52	3.70

Truck Drivers:	Basic Hourly Rates	Fringe Benefits
1 & 2 Axles	25.18	18.31
Three or More Axles; Euclids, Dumptor & Articulated, Truck Mechanic	25.38	18.31

Notes: Welders receive rate prescribed for craft performing operation to which welding is incidental. Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR, 5.5(a)(1)(ii)). Includes Modification #0, dated January 3, 2014; Modification #1, dated February 7, 2014; Modification #2, dated March 14, 2014; Modification #3, dated May 2, 2014; Modification #4, dated June 27, 2014; Modification #5, dated July 4, 2014; Modification #6, dated July 25, 2014; Modification #7, dated August 1, 2014.

STATE: Wisconsin
GENERAL DECISION NUMBER: WI140010
DESCRIPTION OF WORK: Highways and Airport Runway and Taxiway Construction

DATE: August 1, 2014

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	$37.72	$20.93
Group 2: Cranes, tower cranes and derricks, with or without attachments, with a lifting capacity of 100 tons or less or cranes, tower cranes and derricks with boom, leads and/or jib lengths measuring 175 feet or less, and backhoes (excavators) having a manufacturer's rated capacity of 3 cu. yds. and over, caisson rigs, pile driver, dredge operator, dredge engineer.	$37.22	$20.93
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.	$36.72	$20.93
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.	$36.46	$20.93
Group 5: Air compressor; power pack; vibratory hammer and extractor; heavy equipment, leadman; tank car heaters; stump chipper; curb machine operator; concrete pro-portioning plants generators; mudjack operator; rock breaker; crusher or screening plant; screed (milling machine); automatic belt conveyor and surge bin; pug mill operator; oiler; pump (over 3 inches); drilling machine helper.	$36.17	$20.93
Group 6: Off – road material hauler with or without ejector	$30.27	$20.93

Premium Pay:
EPA Level "A" protection - $3.00 per hour
EPA Level "B" protection - $2.00 per hour
EPA Level "C" protection - $1.00 per hours

SUPERSEDES DECISION WI20120010
U. S. DEPARTMENT OF LABOR
(DAVIS-BACON ACT, MINIMUM WAGE RATES)

STATE: Wisconsin
GENERAL DECISION NUMBER: WI140010
DATE: August 1, 2014
DESCRIPTION OF WORK: Highways and Airport Runway and Taxiway Construction

LABORERS CLASSIFICATION:	Rates	Benefits
Electricians		
Area 1	$28.40	16.676
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:	28.50	28.75% + 9.27
Area 5	28.96	24.85% + 9.70
Area 6	35.25	19.30
Area 8		
Electricians	30.60	24.95% + 10.33
Area 9:		
Electricians	32.94	18.71
Area 10	29.64	20.54
Area 11	32.54	24.07
Area 12	32.87	19.23
Area 13	32.82	22.51
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.

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.

SCHEDULE OF ITEMS REVISED:

CONTRACT:	PROJECT(S):	FEDERAL ID(S):
20141209006	2718-12-70	WISC 2014437
	2718-12-71	N/A
	2718-12-72	N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SECTION 0001 SANITARY LATERALS					
0010	201.0105 CLEARING	6.000 STA		.		.
0020	201.0205 GRUBBING	6.000 STA		.		.
0030	204.0100 REMOVING PAVEMENT	12,515.000 SY		.		.
0040	204.0150 REMOVING CURB & GUTTER	2,850.000 LF		.		.
0050	204.0155 REMOVING CONCRETE SIDEWALK	1,110.000 SY		.		.
0060	204.0185 REMOVING MASONRY	1.000 CY		.		.
0070	204.0195 REMOVING CONCRETE BASES	9.000 EACH		.		.
0080	204.0210 REMOVING MANHOLES	8.000 EACH		.		.
0090	204.0220 REMOVING INLETS	21.000 EACH		.		.

CONTRACT: 20141209006
PROJECT(S): 2718-12-70, 2718-12-71, 2718-12-72
FEDERAL ID(S): WISC 2014437, N/A, N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0100	204.0245 REMOVING STORM SEWER (SIZE) 01. 12-INCH	148.000 LF		.		.
0110	204.0245 REMOVING STORM SEWER (SIZE) 02. 15-INCH	449.000 LF		.		.
0120	204.0245 REMOVING STORM SEWER (SIZE) 03. 18-INCH	781.000 LF		.		.
0130	204.0245 REMOVING STORM SEWER (SIZE) 04. 21-INCH	166.000 LF		.		.
0140	204.0245 REMOVING STORM SEWER (SIZE) 05. 24-INCH	92.000 LF		.		.
0150	204.0245 REMOVING STORM SEWER (SIZE) 06. 30-INCH	466.000 LF		.		.
0160	204.0245 REMOVING STORM SEWER (SIZE) 07. 36-INCH	210.000 LF		.		.
0170	204.0245 REMOVING STORM SEWER (SIZE) 08. 42-INCH	128.000 LF		.		.
0180	204.0250 ABANDONING MANHOLES	2.000 EACH		.		.
0190	204.0291.S ABANDONING SEWER	106.000 CY		.		.

CONTRACT: 20141209006

PROJECT(S): 2718-12-70, 2718-12-71, 2718-12-72

FEDERAL ID(S): WISC 2014437, N/A, N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0200	205.0100 EXCAVATION COMMON	16,624.000 CY		.		.
0210	213.0100 FINISHING ROADWAY (PROJECT) 01. 2718-12-70	1.000 EACH		.		.
0220	305.0110 BASE AGGREGATE DENSE 3/4-INCH	138.000 TON		.		.
0230	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH	17,050.000 TON		.		.
0240	312.0110 SELECT CRUSHED MATERIAL	3,768.000 TON		.		.
0250	415.1080 CONCRETE PAVEMENT HES 8-INCH	35.000 SY		.		.
0260	416.0160 CONCRETE DRIVEWAY 6-INCH	980.000 SY		.		.
0270	416.0610 DRILLED TIE BARS	100.000 EACH		.		.
0280	440.4410.S INCENTIVE IRI RIDE	1,060.000 DOL	1.00000		1060.00	
0290	455.0120 ASPHALTIC MATERIAL PG64-28	341.000 TON		.		.
0300	455.0605 TACK COAT	470.000 GAL		.		.

CONTRACT: 20141209006

PROJECT(S): 2718-12-70, 2718-12-71, 2718-12-72

FEDERAL ID(S): WISC 2014437, N/A, N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0310	460.1101 HMA PAVEMENT TYPE E-1	2,855.000 TON		.		.
0320	460.1103 HMA PAVEMENT TYPE E-3	3,280.000 TON		.		.
0330	460.2000 INCENTIVE DENSITY HMA PAVEMENT	3,930.000 DOL	1.00000		3930.00	
0340	465.0120 ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES	6.000 TON		.		.
0350	465.0125 ASPHALTIC SURFACE TEMPORARY	324.000 TON		.		.
0360	520.8000 CONCRETE COLLARS FOR PIPE	2.000 EACH		.		.
0370	601.0407 CONCRETE CURB & GUTTER 18-INCH TYPE D	1,480.000 LF		.		.
0380	601.0411 CONCRETE CURB & GUTTER 30-INCH TYPE D	4,595.000 LF		.		.
0390	601.0600 CONCRETE CURB PEDESTRIAN	137.000 LF		.		.
0400	602.0405 CONCRETE SIDEWALK 4-INCH	10,740.000 SF		.		.

CONTRACT: 20141209006
PROJECT(S): 2718-12-70, 2718-12-71, 2718-12-72
FEDERAL ID(S): WISC 2014437, N/A, N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0410	602.0505 CURB RAMP DETECTABLE WARNING FIELD YELLOW	264.000 SF		.		.
0420	602.2400 CONCRETE SAFETY ISLANDS	1,500.000 SF		.		.
0430	608.0312 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH	10.000 LF		.		.
0440	608.0324 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 24-INCH	81.000 LF		.		.
0450	608.0330 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 30-INCH	62.000 LF		.		.
0460	608.0342 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 42-INCH	542.000 LF		.		.
0470	608.0348 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 48-INCH	8.000 LF		.		.
0480	608.0366 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 66-INCH	268.000 LF		.		.
0490	608.0412 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 12-INCH	1,066.000 LF		.		.
0500	608.0415 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 15-INCH	267.000 LF		.		.

CONTRACT: 20141209006
PROJECT(S): 2718-12-70, 2718-12-71, 2718-12-72
FEDERAL ID(S): WISC 2014437, N/A, N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0510	608.0418 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 18-INCH	342.000 LF		.		.
0520	608.0421 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 21-INCH	327.000 LF		.		.
0530	608.0424 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 24-INCH	751.000 LF		.		.
0540	608.0430 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 30-INCH	79.000 LF		.		.
0550	608.0466 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 66-INCH	63.000 LF		.		.
0560	611.0410 RECONSTRUCTING CATCH BASINS	1.000 EACH		.		.
0570	611.0430 RECONSTRUCTING INLETS	1.000 EACH		.		.
0580	611.0610 INLET COVERS TYPE BW	1.000 EACH		.		.
0590	611.1004 CATCH BASINS 4-FT DIAMETER	4.000 EACH		.		.
0600	611.1005 CATCH BASINS 5-FT DIAMETER	2.000 EACH		.		.

CONTRACT: 20141209006
PROJECT(S): 2718-12-70, 2718-12-71, 2718-12-72
FEDERAL ID(S): WISC 2014437, N/A, N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0610	611.1006 CATCH BASINS 6-FT DIAMETER	1.000 EACH		.		.
0620	611.1230 CATCH BASINS 2X3-FT	45.000 EACH		.		.
0630	611.2004 MANHOLES 4-FT DIAMETER	9.000 EACH		.		.
0640	611.2005 MANHOLES 5-FT DIAMETER	5.000 EACH		.		.
0650	611.2006 MANHOLES 6-FT DIAMETER	3.000 EACH		.		.
0660	611.8105 ADJUSTING CATCH BASIN COVERS	7.000 EACH		.		.
0670	612.0208 PIPE UNDERDRAIN UNPERFORATED 8-INCH	10.000 LF		.		.
0680	612.0406 PIPE UNDERDRAIN WRAPPED 6-INCH	1,790.000 LF		.		.
0690	616.0404 FENCE CHAIN LINK SALVAGED 4-FT	60.000 LF		.		.
0700	616.0700.S FENCE SAFETY	500.000 LF		.		.
0710	619.1000 MOBILIZATION	1.000 EACH		.		.

CONTRACT: 20141209006
PROJECT(S): 2718-12-70, 2718-12-71, 2718-12-72
FEDERAL ID(S): WISC 2014437, N/A, N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0720	620.0300 CONCRETE MEDIAN SLOPED NOSE	95.000 SF		.		.
0730	621.0100 LANDMARK REFERENCE MONUMENTS	2.000 EACH		.		.
0740	623.0200 DUST CONTROL SURFACE TREATMENT	38,450.000 SY		.		.
0750	624.0100 WATER	48.000 MGAL		.		.
0760	625.0100 TOPSOIL	7,125.000 SY		.		.
0770	628.1104 EROSION BALES	100.000 EACH		.		.
0780	628.1504 SILT FENCE	200.000 LF		.		.
0790	628.1520 SILT FENCE MAINTENANCE	100.000 LF		.		.
0800	628.1905 MOBILIZATIONS EROSION CONTROL	10.000 EACH		.		.
0810	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL	5.000 EACH		.		.

CONTRACT: 20141209006
PROJECT(S): 2718-12-70, 2718-12-71, 2718-12-72
FEDERAL ID(S): WISC 2014437, N/A, N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0820	628.2004 EROSION MAT CLASS I TYPE B	100.000 SY		.		.
0830	628.7005 INLET PROTECTION TYPE A	67.000 EACH		.		.
0840	628.7015 INLET PROTECTION TYPE C	73.000 EACH		.		.
0850	628.7560 TRACKING PADS	2.000 EACH		.		.
0860	628.7570 ROCK BAGS	50.000 EACH		.		.
0870	629.0210 FERTILIZER TYPE B	10.000 CWT		.		.
0880	631.0300 SOD WATER	220.000 MGAL		.		.
0890	631.1000 SOD LAWN	7,050.000 SY		.		.
0900	634.0805 POSTS TUBULAR STEEL 2X2-INCH X 5-FT	3.000 EACH		.		.
0910	634.0811 POSTS TUBULAR STEEL 2X2-INCH X 11-FT	46.000 EACH		.		.

CONTRACT: 20141209006

PROJECT(S): 2718-12-70, 2718-12-71, 2718-12-72

FEDERAL ID(S): WISC 2014437, N/A, N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0920	634.0812 POSTS TUBULAR STEEL 2X2-INCH X 12-FT	5.000 EACH		.		.
0930	634.0814 POSTS TUBULAR STEEL 2X2-INCH X 14-FT	10.000 EACH		.		.
0940	634.0816 POSTS TUBULAR STEEL 2X2-INCH X 16-FT	2.000 EACH		.		.
0950	637.2210 SIGNS TYPE II REFLECTIVE H	336.310 SF		.		.
0960	637.2215 SIGNS TYPE II REFLECTIVE H FOLDING	37.500 SF		.		.
0970	637.2230 SIGNS TYPE II REFLECTIVE F	91.000 SF		.		.
0980	638.2102 MOVING SIGNS TYPE II	13.000 EACH		.		.
0990	638.2602 REMOVING SIGNS TYPE II	88.000 EACH		.		.
1000	638.3000 REMOVING SMALL SIGN SUPPORTS	43.000 EACH		.		.
1010	641.8100 OVERHEAD SIGN SUPPORT (STRUCTURE) 01. 544+60, 23' RT	LUMP	LUMP			.

CONTRACT: 20141209006
PROJECT(S): 2718-12-70, 2718-12-71, 2718-12-72
FEDERAL ID(S): WISC 2014437, N/A, N/A

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1020	641.8100 OVERHEAD SIGN SUPPORT (STRUCTURE) 02. 545+50, 23' LT	LUMP	LUMP			.
1030	642.5201 FIELD OFFICE TYPE C	1.000 EACH		.		.
1040	643.0100 TRAFFIC CONTROL (PROJECT) 01. 2718-12-70	1.000 EACH		.		.
1050	643.0300 TRAFFIC CONTROL DRUMS	24,108.000 DAY		.		.
1060	643.0420 TRAFFIC CONTROL BARRICADES TYPE III	6,060.000 DAY		.		.
1070	643.0500 TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER POSTS	2,086.000 EACH		.		.
1080	643.0600 TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER BASES	2,086.000 EACH		.		.
1090	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A	12,120.000 DAY		.		.
1100	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C	2,763.000 DAY		.		.
1110	643.0800 TRAFFIC CONTROL ARROW BOARDS	994.000 DAY		.		.

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PROJECT(S): 2718-12-70, 2718-12-71, 2718-12-72
FEDERAL ID(S): WISC 2014437, N/A, N/A

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1120	643.0900 TRAFFIC CONTROL SIGNS	6,541.000 DAY		.		.
1130	643.1000 TRAFFIC CONTROL SIGNS FIXED MESSAGE	104.000 SF		.		.
1140	643.1050 TRAFFIC CONTROL SIGNS PCMS	28.000 DAY		.		.
1150	643.2000 TRAFFIC CONTROL DETOUR (PROJECT) 01. 2718-12-70	1.000 EACH		.		.
1160	643.3000 TRAFFIC CONTROL DETOUR SIGNS	14,205.000 DAY		.		.
1170	646.0106 PAVEMENT MARKING EPOXY 4-INCH	440.000 LF		.		.
1180	646.0600 REMOVING PAVEMENT MARKINGS	9,400.000 LF		.		.
1190	646.0881.S PAVEMENT MARKING GROOVED WET REFLECTIVE TAPE 4-INCH	15,250.000 LF		.		.
1200	646.0883.S PAVEMENT MARKING GROOVED WET REFLECTIVE TAPE 8-INCH	2,085.000 LF		.		.
1210	647.0726 PAVEMENT MARKING DIAGONAL EPOXY 12-INCH	60.000 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
1220	647.0955 REMOVING PAVEMENT MARKINGS ARROWS	26.000 EACH		.		.
1230	647.0965 REMOVING PAVEMENT MARKINGS WORDS	22.000 EACH		.		.
1240	649.0200 TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH	7,765.000 LF		.		.
1250	649.0400 TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH	20,875.000 LF		.		.
1260	649.0600 TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 6-INCH	990.000 LF		.		.
1270	649.0701 TEMPORARY PAVEMENT MARKING 8-INCH	1,030.000 LF		.		.
1280	649.0801 TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 8-INCH	1,405.000 LF		.		.
1290	649.1100 TEMPORARY PAVEMENT MARKING STOP LINE 18-INCH	110.000 LF		.		.
1300	649.1200 TEMPORARY PAVEMENT MARKING STOP LINE REMOVABLE TAPE 18-INCH	125.000 LF		.		.
1310	649.1700 TEMPORARY PAVEMENT MARKING ARROWS	29.000 EACH		.		.

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1320	649.1800 TEMPORARY PAVEMENT MARKING ARROWS REMOVABLE TAPE	37.000 EACH		.		.
1330	649.1900 TEMPORARY PAVEMENT MARKING WORDS	19.000 EACH		.		.
1340	649.2000 TEMPORARY PAVEMENT MARKING WORDS REMOVABLE TAPE	22.000 EACH		.		.
1350	650.4000 CONSTRUCTION STAKING STORM SEWER	73.000 EACH		.		.
1360	650.4500 CONSTRUCTION STAKING SUBGRADE	4,134.000 LF		.		.
1370	650.5000 CONSTRUCTION STAKING BASE	4,134.000 LF		.		.
1380	650.5500 CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER	8,305.000 LF		.		.
1390	650.8500 CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS (PROJECT) 01. 2718-12-70	LUMP	LUMP			.
1400	650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 2718-12-70	LUMP	LUMP			.
1410	652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	3,235.000 LF		.		.

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1420	652.0235 CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH	2,993.000 LF		.		.
1430	652.0605 CONDUIT SPECIAL 2-INCH	926.000 LF		.		.
1440	653.0135 PULL BOXES STEEL 24X36-INCH	1.000 EACH		.		.
1450	653.0140 PULL BOXES STEEL 24X42-INCH	15.000 EACH		.		.
1460	653.0905 REMOVING PULL BOXES	8.000 EACH		.		.
1470	654.0101 CONCRETE BASES TYPE 1	5.000 EACH		.		.
1480	654.0102 CONCRETE BASES TYPE 2	2.000 EACH		.		.
1490	654.0105 CONCRETE BASES TYPE 5	27.000 EACH		.		.
1500	654.0217 CONCRETE CONTROL CABINET BASES TYPE 9 SPECIAL	1.000 EACH		.		.
1510	655.0230 CABLE TRAFFIC SIGNAL 5-14 AWG	590.000 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
1520	655.0240 CABLE TRAFFIC SIGNAL 7-14 AWG	2,220.000 LF		.		.
1530	655.0260 CABLE TRAFFIC SIGNAL 12-14 AWG	1,600.000 LF		.		.
1540	655.0290 CABLE TRAFFIC SIGNAL 21-14 AWG	205.000 LF		.		.
1550	655.0305 CABLE TYPE UF 2-12 AWG GROUNDED	735.000 LF		.		.
1560	655.0515 ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG	1,740.000 LF		.		.
1570	655.0610 ELECTRICAL WIRE LIGHTING 12 AWG	720.000 LF		.		.
1580	655.0615 ELECTRICAL WIRE LIGHTING 10 AWG	1,808.000 LF		.		.
1590	655.0625 ELECTRICAL WIRE LIGHTING 6 AWG	4,511.000 LF		.		.
1600	655.0630 ELECTRICAL WIRE LIGHTING 4 AWG	12,501.000 LF		.		.
1610	656.0200 ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 01. EAST AVENUE & SUNSET 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
1620	657.0100 PEDESTAL BASES	5.000 EACH		.		.
1630	657.0255 TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE	2.000 EACH		.		.
1640	657.0315 POLES TYPE 4	2.000 EACH		.		.
1650	657.0425 TRAFFIC SIGNAL STANDARDS ALUMINUM 15-FT	3.000 EACH		.		.
1660	657.0430 TRAFFIC SIGNAL STANDARDS ALUMINUM 10-FT	2.000 EACH		.		.
1670	657.0614 LUMINAIRE ARMS SINGLE MEMBER 4-INCH CLAMP 8-FT	4.000 EACH		.		.
1680	658.0110 TRAFFIC SIGNAL FACE 3-12 INCH VERTICAL	12.000 EACH		.		.
1690	658.0115 TRAFFIC SIGNAL FACE 4-12 INCH VERTICAL	10.000 EACH		.		.
1700	658.0215 BACKPLATES SIGNAL FACE 3 SECTION 12-INCH	12.000 EACH		.		.
1710	658.0220 BACKPLATES SIGNAL FACE 4 SECTION 12-INCH	10.000 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
1720	658.0416 PEDESTRIAN SIGNAL FACE 16-INCH	8.000 EACH		.		.
1730	658.0500 PEDESTRIAN PUSH BUTTONS	9.000 EACH		.		.
1740	658.0600 LED MODULES 12-INCH RED BALL	12.000 EACH		.		.
1750	658.0605 LED MODULES 12-INCH YELLOW BALL	12.000 EACH		.		.
1760	658.0610 LED MODULES 12-INCH GREEN BALL	12.000 EACH		.		.
1770	658.0615 LED MODULES 12-INCH RED ARROW	10.000 EACH		.		.
1780	658.0620 LED MODULES 12-INCH YELLOW ARROW	20.000 EACH		.		.
1790	658.0625 LED MODULES 12-INCH GREEN ARROW	10.000 EACH		.		.
1800	658.0635 LED MODULES PEDESTRIAN COUNTDOWN TIMER 16-INCH	8.000 EACH		.		.
1810	658.5069 SIGNAL MOUNTING HARDWARE (LOCATION) 01. EAST AVENUE & SUNSET 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
1820	659.1125 LUMINAIRES UTILITY LED C	6.000 EACH		.		.
1830	661.0200 TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS (LOCATION) 01. SUNSET DR & S EAST AVE	LUMP	LUMP			.
1840	690.0150 SAWING ASPHALT	1,465.000 LF		.		.
1850	690.0250 SAWING CONCRETE	4,100.000 LF		.		.
1860	715.0415 INCENTIVE STRENGTH CONCRETE PAVEMENT	500.000 DOL	1.00000		500.00	
1870	ASP.1T0A ON-THE-JOB TRAINING APPRENTICE AT $5.00/HR	1,500.000 HRS	5.00000		7500.00	
1880	ASP.1T0G ON-THE-JOB TRAINING GRADUATE AT $5.00/HR	1,500.000 HRS	5.00000		7500.00	
1890	SPV.0060 SPECIAL 01. CONCRETE BASE TYPE 10 CONTRACTOR SUP PLIED ANCHOR BOLTS & ANCHOR ROD TEMPLATE	4.000 EACH		.		.
1900	SPV.0060 SPECIAL 02. POLES TYPE 9	2.000 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
1910	SPV.0060 SPECIAL 03. POLES TYPE 10	2.000 EACH		.		.
1920	SPV.0060 SPECIAL 04. MONOTUBE ARMS 25-FT	3.000 EACH		.		.
1930	SPV.0060 SPECIAL 05. MONOTUBE ARMS 30-FT	1.000 EACH		.		.
1940	SPV.0060 SPECIAL 06. LUMINAIRE ARMS STEEL 15-FT	2.000 EACH		.		.
1950	SPV.0060 SPECIAL 08. TRAFFIC SIGNAL CONTROLLER & CABINET 8-PHASE FULLY ACTUATED	1.000 EACH		.		.
1960	SPV.0060 SPECIAL 09. REMOVING LIGHTING UNITS	9.000 EACH		.		.
1970	SPV.0060 SPECIAL 10. LIGHTING PULL BOXES PVC 15X30-INCH	15.000 EACH		.		.
1980	SPV.0060 SPECIAL 11. STANDARD LIGHTING UNITS	13.000 EACH		.		.
1990	SPV.0060 SPECIAL 12. SHORT LIGHTING UNITS	9.000 EACH		.		.
2000	SPV.0060 SPECIAL 13. REINSTALLING LIGHTING UNITS	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
2010	SPV.0060 SPECIAL 14. TEMPORARY LIGHTING UNITS SINGLE	2.000 EACH		.		.
2020	SPV.0060 SPECIAL 15. TEMPORARY LIGHTING UNITS TWIN	2.000 EACH		.		.
2030	SPV.0060 SPECIAL 16. REMOVING TEMPORARY LIGHTING UNITS	4.000 EACH		.		.
2040	SPV.0060 SPECIAL 17. WOOD POLES	2.000 EACH		.		.
2050	SPV.0060 SPECIAL 18. REMOVING WOOD POLES	2.000 EACH		.		.
2060	SPV.0060 SPECIAL 19. PULL BOXES COMPOSITE 24X36X42-INCH	6.000 EACH		.		.
2070	SPV.0060 SPECIAL 20. FURNISH AND INSTALL GATE VALVES AND VALVE BOXES: 8-INCH	4.000 EACH		.		.
2080	SPV.0060 SPECIAL 21. FURNISH AND INSTALL GATE VALVES AND VALVE BOXES: 12-INCH	4.000 EACH		.		.
2090	SPV.0060 SPECIAL 22. FURNISH AND INSTALL BUTTERFLY VALVE AND VALVE BOX: 16-INCH	7.000 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
2100	SPV.0060 SPECIAL 23. RECONNECT 3/4-INCH COPPER WATER SERVICE TYPE SL1	4.000 EACH		.		.
2110	SPV.0060 SPECIAL 24. RECONNECT 1-INCH COPPER WATER SERVICE TYPE SL2	13.000 EACH		.		.
2120	SPV.0060 SPECIAL 25. RECONNECT 3/4-INCH OR 1-INCH COPPER WATER SERVICE TYPE SL3	12.000 EACH		.		.
2130	SPV.0060 SPECIAL 26. RECONNECT 1-1/4-INCH COPPER WATER SERVICE TYPE SL4	2.000 EACH		.		.
2140	SPV.0060 SPECIAL 27. RECONNECT 4-INCH OR 6-INCH WATER SERVICE SERVICE TYPE SL5	2.000 EACH		.		.
2150	SPV.0060 SPECIAL 28. RECONNECT 12-INCH WATER SERVICE TYPE SL6	1.000 EACH		.		.
2160	SPV.0060 SPECIAL 29. RECONNECT 2-INCH COPPER WATER SERVICE TYPE SL7	1.000 EACH		.		.
2170	SPV.0060 SPECIAL 30. HYDRANT ASSEMBLY	9.000 EACH		.		.
2180	SPV.0060 SPECIAL 31. ABANDON HYDRANT	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
2190	SPV.0060 SPECIAL 32. PAVEMENT MARKING GROOVED PREFORMED PLASTIC ARROWS TYPE 2 WHITE	13.000 EACH		.		.
2200	SPV.0060 SPECIAL 33. PAVEMENT MARKING GROOVED PREFORMED PLASTIC WORDS WHITE	8.000 EACH		.		.
2210	SPV.0060 SPECIAL 34. PAVEMENT MARKING GROOVED PREFORMED PLASTIC ARROWS BIKE LANE WHITE	20.000 EACH		.		.
2220	SPV.0060 SPECIAL 35. PAVEMENT MARKING GROOVED PREFORMED PLASTIC WORDS BIKE LANE WHITE	4.000 EACH		.		.
2230	SPV.0060 SPECIAL 36. PAVEMENT MARKING GROOVED PREFORMED PLASTIC SYMBOLS BIKE LANE WHITE	19.000 EACH		.		.
2240	SPV.0060 SPECIAL 37. CONSTRUCTION STAKING CURB RAMPS	33.000 EACH		.		.
2250	SPV.0060 SPECIAL 38. MANHOLE 9-FT DIAMETER	1.000 EACH		.		.
2260	SPV.0060 SPECIAL 39. MANHOLE 10-FT DIAMETER	1.000 EACH		.		.
2270	SPV.0060 SPECIAL 40. MANHOLE 11-FT DIAMETER	2.000 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
2280	SPV.0060 SPECIAL 41. MANHOLE COVERS SPECIAL	21.000 EACH		.		.
2290	SPV.0060 SPECIAL 42. INLET COVERS SPECIAL TYPE L	35.000 EACH		.		.
2300	SPV.0060 SPECIAL 43. INLET COVERS SPECIAL TYPE C	17.000 EACH		.		.
2310	SPV.0060 SPECIAL 44. TAPCO BLINKERSIGN FLASHING LED STOP SIGN	2.000 EACH		.		.
2320	SPV.0060 SPECIAL 45. RECONSTRUCTING SANITARY MANHOLES	13.000 EACH		.		.
2330	SPV.0060 SPECIAL 47. INTERNAL MANHOLE SEALING SYSTEM	13.000 EACH		.		.
2340	SPV.0060 SPECIAL 48. CURB OPENINGS SPECIAL	2.000 EACH		.		.
2350	SPV.0060 SPECIAL 49. COVER PLATE TEMPORARY BURIED	9.000 EACH		.		.
2360	SPV.0060 SPECIAL 50. INSTALLING CITY-FURNISHED STREET NAME SIGNS	6.000 EACH		.		.
2370	SPV.0060 SPECIAL 51. PRE-PAVING TELEVISING SANITARY LATERAL	45.000 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
2380	SPV.0090 SPECIAL 01. AERIAL CABLE ALUMINUM TRIPLEX 2 AWG	170.000 LF		.		.
2390	SPV.0090 SPECIAL 02. AERIAL CABLE ALUMINUM QUADPLEX 2 AWG	345.000 LF		.		.
2400	SPV.0090 SPECIAL 03. REMOVING AERIAL CABLE	515.000 LF		.		.
2410	SPV.0090 SPECIAL 04. FURNISH AND INSTALL WATER MAIN AND FITTINGS 8-INCH	294.000 LF		.		.
2420	SPV.0090 SPECIAL 05. FURNISH AND INSTALL WATER MAIN AND FITTINGS 12-INCH	1,224.000 LF		.		.
2430	SPV.0090 SPECIAL 06. FURNISH AND INSTALL WATER MAIN AND FITTINGS 16-INCH (CLASS 50)	2,744.000 LF		.		.
2440	SPV.0090 SPECIAL 07. PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC STOP LINE 18-INCH WHITE	290.000 LF		.		.
2450	SPV.0090 SPECIAL 08. PAVEMENT MARKING GROOVED PREFORMED THERMOPLASTIC CROSSWALK 6-INCH WHITE	1,200.000 LF		.		.
2460	SPV.0090 SPECIAL 09. CONCRETE CURB & GUTTER 66-INCH TYPE D	2,230.000 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	SPV.0090 SPECIAL 10. TREE ROOT SAWING	435.000 LF		.		.
2480	SPV.0090 SPECIAL 11. STORM SEWER PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLHE-IV43X68-INCH	323.000 LF		.		.
2490	SPV.0090 SPECIAL 12. REPLACE SANITARY SEWER LATERALS	1,114.000 LF		.		.
2500	SPV.0090 SPECIAL 13. PRE-PAVING TELEVISING SANITARY MAIN LINE	4,344.000 LF		.		.
2510	SPV.0105 SPECIAL 01. VIDEO VEHICLE DETECTION SYSTEM INTERSECTION OF EAST AVE & SUNSET DR	LUMP	LUMP			.
2520	SPV.0105 SPECIAL 02. EMERGENCY VEHICLE PREEMPTION SYSTEM INTERSECTION OF EAST AVE & SUNSET DR	LUMP	LUMP			.
2530	SPV.0105 SPECIAL 03. REMOVE TRAFFIC SIGNALS & STREET LIGHTING INTER OF EAST AVE & SUNSET DR	LUMP	LUMP			.
2540	SPV.0105 SPECIAL 04. ABANDON VALVE BOXES AND MANHOLES	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
2550	SPV.0105 SPECIAL 05. TEMP VEHICULAR VIDEO DETECTION SYSTEM, SUNSET DR & S EAST AVE	LUMP	LUMP			.
2560	SPV.0105 SPECIAL 06. TEMPORARY EVP SYSTEM, SUNSET DR & S EAST AVE	LUMP	LUMP			.
2570	SPV.0165 SPECIAL 01. CONCRETE SIDEWALK STAMPED AND COLORED 4-INCH	4,190.000 SF		.		.
2580	SPV.0170 SPECIAL 01. TEST ROLLING	45.000 STA		.		.
2590	SPV.0180 SPECIAL 01. GEOGRID REINFORCEMENT	4,235.000 SY		.		.
	SECTION 0001 TOTAL					.
	TOTAL BID					.

PLEASE ATTACH SCHEDULE OF ITEMS HERE