HIGHWAY WORK PROPOSAL

Proposal Number: 3 2

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

COUNTY	STATE PROJECT ID	FEDERAL PROJECT ID	PROJECT DESCRIPTION	HIGHWAY
Brown	4987-07-71	WISC 2016 123	City of Green Bay, Green Bay Lift Structures	STH 29
Brown	4987-07-72	WISC 2016 124	City of Green Bay, Green Bay Lift Structures	STH 29

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, $ 40,000.00 Payable to: Wisconsin Department of Transportation	Attach Proposal Guaranty on back of this PAGE.
Bid Submittal Due Date: April 12, 2016 Time (Local Time): 9:00 AM	Firm Name, Address, City, State, Zip Code **SAMPLE** **NOT FOR BIDDING PURPOSES**
Contract Completion Time July 28, 2017	
Assigned Disadvantaged Business Enterprise Goal DISC%	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 Electrical and mechanical rehabilitation of Structure B-05-0311, electrical system upgrades for remote operations for Structure B-05-0134, Structure B-05-0269, and Structure B-05-0311.	
Notice of Award Dated	Date Guaranty Returned

PLEASE ATTACH
PROPOSAL GUARANTY HERE

Effective with November 2007 Letting

PROPOSAL REQUIREMENTS AND CONDITIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

Effective with August 2015 Letting

BID PREPARATION

Preparing the Proposal Schedule of Items

A General

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

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

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

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

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

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

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

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

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

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

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

B Submitting Electronic Bids

B.1 On the Internet

(1) Do the following before submitting the bid:

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

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

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

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

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

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

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

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

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

Bidder

Name

BN00

Proposals: 1, 12, 14, & 22

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

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

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

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

C Waiver of Electronic Submittal

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

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

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

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

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

PROPOSAL BID BOND

Wisconsin Department of Transportation

DT1303 1/2006

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

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

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

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

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

PRINCIPAL

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

(Signature and Title)

(Company Name)

(Signature and Title)

(Company Name)

(Signature and Title)

(Company Name)

(Signature and Title)

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

(Signature of Attorney-in-Fact)

NOTARY FOR PRINCIPAL

(Date)

State of Wisconsin)
) ss.
_____ County)

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

(Signature, Notary Public, State of Wisconsin)

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

(Date Commission Expires)

Notary Seal

NOTARY FOR SURETY

(Date)

State of Wisconsin)
) ss.
_____ County)

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

(Signature, Notary Public, State of Wisconsin)

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

(Date Commission Expires)

Notary Seal

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

CERTIFICATE OF ANNUAL BID BOND

Wisconsin Department of Transportation

DT1305 8/2003

Time Period Valid (From/To)
Name of Surety
Name of Contractor
Certificate Holder 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 Projects 4987-07-71 and 4987-07-72, City of Green Bay, Green Bay Lift Structures, STH 29, Brown 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, 2016 Edition, as published by the department, and these special provisions.

If all or a portion of the plans and special provisions are developed in the SI metric system and the schedule of prices is developed in the US standard measure system, the department will pay for the work as bid in the US standard system.
100-005 (20150630)

2. Scope of Work.

The work under this contract shall consist of rehabilitation of Structure B-05-0134, Structure B-05-0269, and Structure B-05-0311 including bridge electrical work and bridge CCTV systems, 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.

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.

Migratory Birds
Swallow and other migratory birds' nests have been observed on or under the Walnut Street bridge, the Mason Street bridge, and the Main Street bridge. No impacts are anticipated to the bird nests on the bridges.

All active nests (when eggs or young are present) of migratory birds are protected under the federal Migratory Bird Treaty Act.

The nesting season for swallows and other birds is usually between May 1 and August 30. Either prevent active nests from becoming established, or apply for a depredation permit from the US Fish and Wildlife Service for work that may disturb or destroy active nests. The need for a permit may be avoided by removing the existing bridge structure prior to nest occupation by birds, or clearing nests from all structures before the nests become active in early spring. As a last resort, prevent birds from nesting by installing a suitable netting device on the remaining structure prior to nesting activity. Include the cost for preventing nesting in the cost of other items under this contract. No separate payment will be made for netting.

U.S. Coast Guard Coordination

For all bridges in this contract, any impact or deviation from permanent bridge opening requirements or any impacts to navigation, are authorized by the U.S. Coast Guard.

Coordinate with the U.S. Coast Guard at least 30 calendar days prior to the start of any work that temporarily alters the navigational clearances, places equipment in the waterway, or could potentially affect navigation during the project at any of the bridge sites. The U.S. Coast Guard contact is as follows:

Mr. Lee Soule
Commander (DPB)
Ninth Coast Guard District
1240 East 9th Street
Cleveland, OH 44199-2060
Lee.D.Soule@uscg.mil
Office: (216) 902-6085
Fax: (216) 902-6088

Keep the Coast Guard District informed of the schedule of work and provide any notifications prior to any change to the schedule. In addition, the name of the person who may be contacted on a 24-hour basis to respond to an emergency at the work site shall be provided.

Full closure of the lift bridges to navigational vessels will only be allowed during the non-navigation season between January 1 and March 15 or as allowed by the U.S. Coast Guard.

Bridge Work Coordination

Full closure of the Walnut Street and the Mason Street bridges to navigational traffic are not anticipated. Full bridge closure to waterway navigational traffic at the Main Street bridge is anticipated during a portion of the bridge work and will be allowed during the non-navigation window as approved by the department and U.S. Coast Guard. Outside of the full closure window, interruptions to the lift bridge operations at all three bridges are anticipated to be periodic and similar in nature to a normal bridge opening and closing operations as defined in the article for Traffic.

Testing of each bridge cannot occur at the same time.

4. Traffic.

Maintain STH 29, STH 54 and USH 141 traffic under normal bridge operations unless specified below.

Notify the following 14 days prior to the start of work: Wisconsin State Patrol, Brown County Highway Department, Brown County Sheriff Department, City of Green Bay Department of Public Works, City of Green Bay Police Department, City of Green Bay Fire Department, Bellin Hospital, Emergency Services, Local Postal Carriers and local school districts.

Allowed Lane Closures
Coordinate with engineer 14 days prior to any closure.

USH 141/Main Street
Full closure of USH 141/Main Street is allowed for electrical system startup a maximum of two nights, defined as 10:00 PM Monday, Tuesday, Wednesday, Thursday and Friday to 5:00 AM the following day.

Full closures of a maximum of 30 minutes are allowed for testing between 10:00 PM Monday, Tuesday, Wednesday, Thursday and Friday to 5:00 AM the following day.

Single lane closures are allowed 9:00 AM to 2:00 PM Monday, Tuesday, Wednesday, Thursday and Friday and 10:00 PM Monday, Tuesday, Wednesday, Thursday and Friday to 5:00 AM the following day for delivery and removal of materials and equipment. Minimize impacts to traffic as much as possible. Open lanes immediately after completion of material deliveries/removals.

STH 29/Walnut Street
Full closures of a maximum of 30 minutes are allowed for testing between 10:00 PM Monday, Tuesday, Wednesday, Thursday and Friday to 5:00 AM the following day.

Single lane closures are allowed 9:00 AM to 2:00 PM Monday, Tuesday, Wednesday, Thursday and Friday and 10:00 PM Monday, Tuesday, Wednesday, Thursday and Friday to 5:00 AM the following day for delivery and removal of materials and equipment. Minimize impacts to traffic as much as possible. Open lanes immediately after completion of material deliveries/removals.

STH 54/Mason Street
Full closures of a maximum of 30 minutes are allowed for testing between 10:00 PM Monday, Tuesday, Wednesday, Thursday and Friday to 5:00 AM the following day.

Single lane closures are allowed 9:00 AM to 2:00 PM Monday, Tuesday, Wednesday, Thursday and Friday and 10:00 PM Monday, Tuesday, Wednesday, Thursday and Friday to 5:00 AM the following day for delivery and removal of materials and equipment. Minimize

impacts to traffic as much as possible. Open lanes immediately after completion of material deliveries/removals.

Traffic Control Contingency Plan
Submit a contingency plan to the engineer at the preconstruction meeting which addresses roadway traffic management and traffic control in the event of a bridge closure failure during a testing period or any other project work which may prevent roadway traffic from using the bridge longer for a period of longer than 30 minutes at each bridge location.

If a bridge cannot be open during the equipment testing by 5:00 AM, coordinate with the engineer the closures of the below roadways. The contractor shall have sufficient traffic control devices on site, during equipment testing, to close the following roadways according to the standard detail drawings:

STH 29/Walnut Street (B-05-0269)

- STH 29 at Pearl Street
- STH 29 at Museum Place
- STH 29 at Washington Street

STH 54/Mason Street (B-05-0134)

- STH 54 eastbound at 12th Avenue
- STH 54 eastbound at 11th Avenue
- STH 54 eastbound at 10th Avenue
- STH 54 eastbound on-ramp from South Ashland Avenue
- STH 54 eastbound on-ramp from South Broadway Street
- STH 54 westbound at South Webster Avenue
- STH 54 westbound on-ramp from Chicago/South Quincy Streets
- STH 54 westbound on-ramp from Chicago/South Jefferson Streets
- STH 54 westbound at 10th Avenue
- STH 54 westbound at 11th Avenue
- STH 54 westbound at 12th Avenue

USH 141/Main Street (B-05-0311)

- USH 141 at Pearl Street
- USH 141 at Museum Place
- USH 141 at Washington Street

Wisconsin Lane Closure System Advance Notification
Provide the following advance notification to the engineer for incorporation into the Wisconsin Lane Closure System (LCS).

TABLE 108-1 CLOSURE TYPE AND REQUIRED MINIMUM ADVANCE NOTIFICATION

Closure type with height, weight, or width restrictions (available width, all lanes in one direction ≤16')	MINIMUM NOTIFICATION
Lane and shoulder closures	14 calendar days
Full roadway closures	14 calendar days
System and service ramp closures	14 calendar days
Full system and service ramp closures	14 calendar days
Detours	14 calendar days
Closure type without height, weight, or width restrictions (available width, all lanes in one direction >16')	MINIMUM NOTIFICATION
Lane and shoulder closures	3 business days
System and service ramp closures	3 business days
Modifying all closure types	3 business days

Discuss LCS completion dates and provide changes in the schedule to the engineer at weekly project meetings in order to manage closures nearing their completion date.
108-057 (20150630)

5. Lane Rental Fee Assessment for Not Opening Lanes.

This special provisions describes Lane Rental Fee Assessments associated with not opening roadways in the allotted time stated in the article for Traffic and prohibiting navigational traffic requested openings. These fees will be assessed in additional to all other damages stated in the contract.

Lane Rental Fee Assessment
Not including the maximum of two nights of full closure allowed on USH 141/Main Street between 10:00 PM Monday, Tuesday, Wednesday, Thursday and Friday and 5:00 AM the following day, there cannot be a full closure greater than 30 minutes on USH 141/Main Street, STH 29/Walnut Street and STH 54/Mason Street outside of 10:00 PM Monday, Tuesday, Wednesday, Thursday and Friday to 5:00 AM the following day.

There cannot be any single lane closures on USH 141/Main Street, STH 29/Walnut Street and STH 54/Mason Street outside of 9:00 AM to 2:00 PM Monday, Tuesday, Wednesday, Thursday and Friday and 10:00 PM Monday, Tuesday, Wednesday, Thursday and Friday to 5:00 AM the following day.

If a full closure of a roadway is greater than 30 minutes, the contractor will be subject to Lane Rental Fee Assessments.

If a single lane closure for material delivery/removal or full closure for testing or start up occurs outside the allowed timeframes or a navigational traffic request is not accommodated outside of the non-navigation season, the contractor will be subject to Lane Rental Fee Assessments. If a lane is obstructed at any time due to contractors operations, it is considered a closure.

The Lane Rental Fee Assessments will be measured by 15-minute increments. All lane and roadway closure events increments less than 15 minutes will be assessed as 15 minute increments.

The Lane Rental Fee Assessment incurred for each single lane closure, each full closure of a roadway, and each navigational traffic request not accommodated per direction of travel is: $1,000 per 15 minutes.

Lane Rental Fee Assessments will be made based on the applicable rate for any and all closures whether work is being performed or not. The engineer, or designated representative, will be the sole authority in determining time period length for the Lane Rental Fee Assessment.

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

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

Lane Rental Fee Assessment will be in effect from the time of the Notice to Proceed until the department issues final acceptance.

6. Holiday Work Restrictions.

Do not perform work on, nor haul materials of any kind along or across any portion of the highway carrying STH 29, STH 54, and USH 141 traffic, and entirely clear the traveled way and shoulders of such portions of the highway of equipment, barricades, signs, lights, and any other material that might impede the free flow of traffic during the following holiday periods:

- From noon Friday, May 27, 2016 to 6:00 AM Tuesday, May 30, 2016 for Memorial Day;
- From noon Friday, July 1, 2016 to 6:00 AM Tuesday, July 5, 2016 for Independence Day;
- From noon Friday, September 2, 2016, to 6:00 AM Tuesday, September 6, 2016 for Labor Day;

- From noon Wednesday, November 23, 2016 to 6:00 AM Monday, November 28, 2016 for Thanksgiving;
- From noon Friday, December 23, 2016 to 6:00 AM Tuesday, January 3, 2017 for Christmas and New Year's Day;
- From noon Friday, May 26, 2017 to 6:00 AM Tuesday, May 30, 2017 for Memorial Day;
- From noon Friday, June 30, 2017 to 6:00 AM Wednesday, July 5, 2017 for Independence Day.

107-005 (20050502)

7. Utilities.

This contract comes under the provision of Administrative Rule Trans 220.
107-065 (20080501)

The following utility owners have facilities within the project area; however, no adjustments are anticipated:

- ATC Management, Inc.; the ATC Management, Inc. contact for this project is Doug Vosberg, (608) 877-7650.
- AT&T Wisconsin; the AT&T Wisconsin contact for this project is Joe Kassab, (920) 735-3206.
- City of Green Bay (Sanitary Sewer); the City of Green Bay contact for this project is Kristin Romanowicz, (920) 448-3100.
- Green Bay Metro Sewer; the Green Bay Metro Sewer contact for this project is Robert Reinhart, (920) 619-4917.
- Green Bay Water Utility; the Green Bay Water Utility contact for this project is Jeff Wolford, (920) 621-8071.
- Time Warner Cable; the Time Warner Cable Utility contact for this project is Vince Albin, (920) 831-9249.
- Windstream KDL, Inc.; the Windstream KDL Utility contact for this project is Dennis Ruess, (608) 512-5587.
- Wisconsin Public Service Corporation (Electric); the Wisconsin Public Service Corporation contact for this project is Randy Steier, (920) 655-1596.
- Wisconsin Public Service Corporation (Gas); the Wisconsin Public Service Corporation contact for this project is David Retzlaff, (920) 617- 5237.

8. Environmental Protection, No Instream Disturbance.

There shall be no instream or riverbed disturbance of the Fox River as a result of any of the construction activities under or for this contract.

For the contractor's information:

- Fish spawning movements typically occur from February 15 to July 1 within the Fox River.
- The Fox River and the Fox River Government Canal riverbed contain polychlorinated biphenyls (PCBs). There is ongoing effort by others to remove the PCBs within the riverbed. The Wisconsin DNR is monitoring the removal of the PCBs. The Wisconsin DNR contact for this effort is Gary Kincaid, (920) 662-5136.

Any proposed changes to these provisions will require submitting a written request by the contractor to the engineer, Wisconsin DNR, and US Army Corps of Engineers in the request. Submittal of a request does not constitute approval.

9. Environmental Protection, Aquatic Exotic Species Control.

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

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

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

1. Prior to leaving the contaminated site, wash machinery and ensure that the machinery is free of all soil and other substances that could possibly contain exotic invasive species;
2. Drain all water from boats, trailers, bilges, live wells, coolers, bait buckets, engine compartments, and any other area where water may be trapped;
3. Inspect boat hulls, propellers, trailers and other surfaces. Scrape off any attached mussels, remove any aquatic plant materials (fragments, stems, leaves, seeds, or roots), and dispose of removed mussels and plant materials in a garbage can prior to leaving the area or invested waters; and
4. Disinfect your boat, equipment and gear by either:
    a. Washing with ~212º F water (steam clean), or
    b. Drying thoroughly for five days after cleaning with soap and water and/or high pressure water, or

c. Disinfecting with either 200 ppm (0.5 oz per gallon or 1 Tablespoon per gallon) Chlorine for 10-minute contact time or 1:100 solution (38 grams per gallon) of Virkon Aquatic for 20- to 30-minute contact time. Note: Virkon is not registered to kill zebra mussel veligers nor invertebrates like spiny water flea. Therefore this disinfect should be used in conjunction with a hot water (>104º F) application.

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

10. Construction Over or Adjacent to Navigable Waters.

Supplement standard spec 107.19 with the following:

The Fox River is classified as a navigable waterway.
107-060 (20040415)

Submit a contingency plan to the engineer prior to the start of construction. Include the names and telephone numbers of personnel and a list of equipment that will be available to correct any navigation problems that may arise during non-working hours.

Provide industry accepted measures and precautions to prevent accidental dropping of debris, sparks, flames, lighted or other damaging objects onto boats and water users passing beneath the bridge.

Ensure the rights and safety of the navigating public. Place appropriate warning signs and buoys upstream and downstream of the project site. According to the U.S. Coast Guard Standards, place marker lights on all watercraft and equipment that will remain moored, anchored, or otherwise floating on the river between dusk and dawn. Sign, mark, or light all other potential navigation hazards associated with the project including, but not limited to, construction machinery, rigging, and temporary structures. Provide water space with horizontal and vertical clearances to allow for safe public navigation through the construction site at all times. Payment for this accommodation is considered incidental to the contract work.

11. Other Contracts.

The following projects will be under construction concurrently with the work under this contract:

Project 9210-17-60 which includes concrete and electrical/mechanical rehabilitation of the Mason Street bridge (B-05-0134) under a separate department. Work is scheduled for 2016 and spring of 2017. For more information, the department contact is Andrew Fulcer, (920) 362-6126.

12. Traffic Control.

Perform this work according to the requirements of standard spec 643, and as shown on the plans or as approved by the engineer, except as hereinafter modified.

Submit to engineer for approval a detailed traffic control plan for any changes to the proposed traffic control detail as shown on the plans. Submit this plan at least ten days prior to the preconstruction conference.

Provide 24 hours-a-day availability of equipment and forces to expeditiously restore lights, signs, or other traffic control devices that are damaged or disturbed. The cost to maintain and restore the above items shall be considered incidental to the item as bid and no additional payment will be made therefore.

Supply the name and telephone number of a local contact person for traffic control repair before starting work.

Have available at all times sufficient experienced personnel to promptly install, remove and reinstall the required traffic control devices to route traffic during the construction operations.

The turning of traffic control devices when not in use to obscure the message will not be allowed under this contract.

Obtain prior approval from the engineer for the location of egress and ingress for construction vehicles to prosecute the work.

Cover existing signs which conflict with traffic control as directed by the engineer.

Conduct operations in such a manner that causes the least interference and inconvenience to the free flow of vehicles on the roadways. This includes the following:

a. Do not park or store any vehicle, piece of equipment, or construction materials on the right-of-way without approval of the engineer.
b. All construction vehicles and equipment entering or leaving live traffic lanes shall yield to through traffic.
c. Equip all vehicles and equipment entering or leaving the live traffic lanes with a hazard identification beam (flashing yellow signal) capable of being visible on a sunny day when viewed without the sun directly on or behind the device from a distance of 1000 feet. Activate the beam when merging into or exiting a live traffic lane.

Do not disturb, remove or obliterate any traffic control signs, advisory signs, shoulder delineators or beam guard in place along the traveled roadways without the approval of the engineer. Immediately repair or replace any damage done to the above during the construction operations at contractor expense.

The traffic requirements are subject to change at the direction of the engineer in the event of an emergency.

13. Traffic Control (4987-07-71); Traffic Control (4987-07-72).

Supplement the article for Traffic and standard spec 643.5.2 with the following:

Material Deliveries
Payment to deliver, install, cover, and remove traffic control devices for any loading and unloading of materials and equipment shall be paid for under the bid item Traffic Control (4987-07-71 or 4987-07-72) and no additional payment will be made for traffic control items used on this project.

Main Street Startup (B-05-0311)
Payment to deliver, install, cover, and remove traffic control devices for full closure of USH 141 shall be paid for under the bid item Traffic Control (4987-07-72) and no additional payment will be made for traffic control items used on this project.

Traffic control items delivered to the site for standby purposes during field testing will be considered part of the bid item Traffic Control (4987-07-72) and no additional payment will be made for the traffic control items for standby purposes during field testing.

Equipment Testing
Payment to deliver, install, cover, and remove traffic control devices for equipment testing shall be paid for under the bid item Traffic Control (4987-07-71 or 4987-07-72) and no additional payment will be made for traffic control items used on this project.

Traffic control items delivered to the site for standby purposes during field testing will be considered part of the bid item Traffic Control (4987-07-71 or 4987-07-72) and no additional payment will be made for the traffic control items for standby purposes during field testing.

14. Nighttime Work Lighting-Stationary.

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

B (Vacant)

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

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

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

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

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

4. Electrical power source information.

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

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

7. Detail information on any other auxiliary equipment.

C.2 Portable Lighting

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

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

C.3 Light Level and Uniformity

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

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

C.4 Glare Control

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

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

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

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

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

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

D (Vacant)

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

15. Mason Street Bridge Remote Operations Work, B-05-0134, SPV.0105.01; Main Street Bridge Electrical and Remote Operations Work, B-05-0311, SPV.0105.03.

A Description
A.1 General
This special provision describes removing existing electrical system components at Main Street Bridge and furnishing, installing, and placing in satisfactory operating condition new components for the electrical systems at Main Street Bridge, Mason Street Bridge and Walnut Street Bridge to upgrade the control system at Main Street Bridge and to allow for the future remote operation of Main Street bridge and Mason Street bridge from the Walnut Street Bridge. These bridge electrical systems are for the permanent operation of the bridges and auxiliaries as indicated on the plans, called for in these special provisions, and as required for complete functioning systems.

The major pieces of equipment or systems covered include, but are not limited to, limit switches, programmable logic controller (PLC), raceway and conductor systems, closed circuit television (CCTV) and public address (PA) systems, wireless communications systems and monitoring equipment. In addition to furnishing and installing the new bridge electrical systems, the work also includes demolition of the existing electrical systems.
For specifics to each of the three bridges, refer to sections A.2, A.3 and A.4.

A.2 Mason Street Bridge Electrical Work
At Mason Street, the work includes provision of an Ethernet transceiver, new PA system installed on the CCTV network, and modification of the PLC software to allow for remote operation of the bridge from Walnut Street.

A.3 Walnut Street Bridge Electrical Work
At Walnut Street, the work includes provision of two remote control stations, one for Main Street and one for Mason Street. Each remote control station will consist of a remote operating console, CCTV monitors, CCTV and PA controls, Ethernet switches and Ethernet transceivers to communicate to the respective bridges.

A.4 Main Street Bridge Electrical Work
At Main Street, the work consists of the removal and replacement of the existing PLC equipment and wireless network, and providing and installing new PLC equipment with wireless communication both between either side of the bridge and the remote operators station at Walnut Street. New PLC software shall be written using the current program as a basis for the new program. In addition, new Ethernet based CCTV and PA equipment shall be provided and installed.

A.5 Conformance
Electrical equipment and its installation shall conform to the requirements of the latest revision of the American Association of State Highway Transportation Officials (AASHTO), except as may be otherwise provided herein. In addition, it shall conform to the requirements of the current National Electrical Code (NEC), National Electrical Manufacturer's Association (NEMA), Underwriters Laboratory (UL), Institute of Electrical and Electronics Engineers (IEEE) and to any applicable local rules and ordinances. Contractor shall obtain any required permits and approvals of all departments or agencies having jurisdiction.

B Materials
B.1 Working Drawings and Samples
Provide shop drawings and operation and maintenance manuals as specified herein.

Prepare and submit for review working drawings according to the approved project schedule. Provide the following working drawings according to the provisions of the contract:

- Complete schematic wiring diagrams, including all power, control, and lighting connections. Identify electrical devices and each wire between devices by an individual designation of letters, numbers, or a combination of both; and use such designations wherever the devices or wires appear on other drawings. Include a complete set of catalog cuts for materials furnished for review at time of schematic submittal.
- Layout drawings and internal connection diagrams of the control panels.
- A schedule of electrical apparatus which lists each electrical device by its designation as shown on the schematic wiring diagram and states for each device its rating, number of poles or contacts, function, catalog number, and location.
- Complete interconnection diagrams for all electrical apparatus and equipment used in the operation of the spans and their auxiliaries. The diagrams shall be of the point-to-point type and shall show the external connections of all devices and equipment. The control system vendors shop drawings shall include complete drawings of terminal block layouts to allow the contractor to properly develop interconnect drawings. Computer-generated interconnection lists will not be acceptable in lieu of a true interconnection diagram.
- A complete schematic conduit and cable diagram or diagrams showing the interconnection of all devices and equipment, including ducts and junction boxes, and showing all multi conductor cables. Show the size of each conduit, and the wire number of each conductor in multi conductor cables on the diagrams. Suitably number or letter each conduit and multi conductor cable, and show percent wire fill. As built the final installed length.
- A complete set of layout and installation drawings for the electrical work showing the location and installation, including support and mounting details, of all electrical apparatus and equipment. Make these drawings to scale and show the exact location of all conduits, cables, wiring ducts, boxes, motors, brakes, limit switches, disconnect switches, and other electrical equipment and the method of supporting them on the structure.
- Detail drawings showing the construction and mounting details of all wiring troughs and raceways.
- A complete list of all spare parts furnished as part of the Contract.
- Material listing and specifications for programmable controller, including input/output units, programming terminal, and equipment for interfacing.
- The programmable controller program listings in ladder-rung formats. Describe circuit functions; identify all contacts and outputs by word description and by number designation. Number ladder rungs sequentially for reference. Fully document and comment the ladder diagram, and identify and list internal ladder logic relay contacts usage in other rungs. Reference inputs and outputs to locations of signals on interconnection diagram. Include a full cross-reference report.
- Detail drawings showing the construction of cabinets, brackets, and special supports required for the installation of the flexible cable between the fixed pier terminal cabinets and the movable bascule leaf terminal cabinets.
- Any other drawings, which may, in the opinion of the engineer, be necessary to show the electrical work.

Where specific manufacturers catalog numbers and/or class/type/form are noted on the contract document, these items need not be submitted for review, so long as these exact devices are utilized. For contactors, starters, pilot devices, circuit breakers, disconnect switches and control relays, any NEMA rated device that meets the required ratings from Square D, Allen-Bradley, Cutler-Hammer, or General Electric may be utilized without submitting for review, save that the engineer reserves the right to reject as unsuitable, during the shop inspection or in the field, devices or equipment that in his sole opinion do not meet the requirements of the contract documents. Any rejected equipment or device shall be replaced with engineer approved equipment or device at no additional cost to the department or impact with the construction schedule. In addition, using the pre-approved equipment and material does not relieve the contractor of the requirements to properly integrate this equipment into a complete, fully operational system.

Upon completion of the work, correct all electrical shop or working drawings to show the work as constructed and provide one set of reproducible Mylar drawings. In addition, submit in computerized file form in Adobe Acrobat (pdf) Format all electrical schematics, ladder diagrams, internal ladder logic diagrams, systems documentation, dimension drawings of equipment, and devices submitted by the electrical systems vendor.

Submit for inspection and test, if directed by the engineer, samples of any apparatus or device, which is proposed for use as a part of the electrical installation.

B.2 Instruction Books and Drawings Books

Furnish to the engineer for Main Street and Mason Street Bridges seven bound copies and a CD, one of which remains with the design consultant engineer, of an instruction manual with the title "Operation and Maintenance Manual, Volume 1, Operation of Electrical Equipment," containing the following:

- Table of Contents.
- Detailed, technical operating instructions, which cover span operation, manual operation, span operation with PLC disabled, etc.
- Detailed description of all control equipment including instructions to achieve optimum settings of all limit switches, detectors, etc.
- Description of control, which shall describe in full the functions of all protective devices, limit switches, contactors, relays, PLC and associated equipment and all other electrical equipment used, both in the power service and in the control system, in connection with each step in the operating sequence. Use wire and apparatus numbers appearing on the wiring diagrams in this description for identifying the various devices and circuits.
- Detailed, technical operating instructions, which cover span operation by means of remote control from Walnut Street.

To augment the description of control and operations, include reference drawings showing locations of equipment. Include a layout of control apparatus in the machinery rooms. Cross-reference all descriptions with reference drawings. For Mason Street Bridge, the existing manual can be edited with the information pertaining to remote control.

Furnish to the engineer for each bridge seven bound copies and a CD, one of which remains with the design consulting engineer, of a book with the title "Operation and Maintenance Manual, Volume 2, Maintenance of Electrical Equipment," containing the following:

- Table of Contents.
- Maintenance instructions for the electrical equipment, including warnings and precautions to be observed during maintenance actions. All preventive maintenance procedures are to be outlined and a chart listing all maintenance procedures in chronological order shall be provided.
- Set of descriptive leaflets, bulletins, maintenance instructions, and drawings covering all approved items of equipment furnished and installed under the item "Bridge Electrical Work."
- A troubleshooting flow chart for troubleshooting the bridge electrical system shall be provided to facilitate the diagnosing and correcting of malfunctions.
- Instructions for diagnosing malfunctions of the programmable control system and for detecting failures in the external controls connected thereto.
- Reduced size prints of working drawings, including all schematic wiring diagrams, control console and control panel layouts and connection diagrams.
- PLC schematic wiring, relay logic, PLC input/output hardwire diagram, PLC logic and PLC ladder diagrams.
- Control console and control panel layouts and wiring diagrams.
- Composite schedule of electrical apparatus.
- Complete spare parts list.
- Test data, equipment, criteria, and performance curves for all span drive motors.
- Conduit layout and installation drawings.
- Names, addresses and telephone numbers of vendors and suppliers.
- PLC software program.

For Mason Street, the existing manual can be edited to include the updated PLC program and the newly installed equipment.

Assemble the material for the operation and maintenance manuals to form a booklet for each volume with heavy plastic covers. Assemble each booklet in a three-ring binder, approximately 9 inch by 12 inch with 3-inch "D" rings, with a vinyl cover to allow insertable Title Sheets. Neatly entitle each booklet with a descriptive title, the name of the bridge, the department, the location, year of installation, contractor, and Designer. Include easily legible copies of drawings in black on a white background. Submit the arrangements of the booklets, the method of binding, material to be included, and the text to the engineer for approval. Complete the final bound volumes of the instruction books and make them available at the bridge site for use during the field-testing period hereinafter specified for the electrical work.

Number and list by section in the Table of Contents all literature and descriptive materials included in any manual.

Separate each section/subsection with tabbed divider sheets. Suitably title each tab.

Use 20 pound, 3 hole pre-punched loose leaf paper and reinforced with plastic or cloth tape.

B.3 Equipment and Material Provisions

Provide all new equipment and materials. Provide equipment, materials, and workmanship that is first-class in every particular and that is manufactured and erected to the satisfaction of the engineer. Provide a warrantee for the in-service working of the electrical installations for one year following project acceptance. If the contractor has any objection to any feature of the electrical equipment as designed and laid out, he must state his objection at once in writing to the engineer, otherwise his objection will be ignored if offered as an excuse for malfunctioning of the equipment or for defective or broken apparatus.

Provide each piece of electrical equipment and apparatus with a corrosion-resisting metal nameplate on which is stamped the name of the manufacturer and the rating or capacity of the equipment or apparatus.

Use corrosion-resisting material, such as aluminum, bronze, or stainless steel, for all metal parts of the installation, except parts that are specified to be structural steel. Use cast-iron, malleable iron, or steel with a hot-dip galvanized finish where specified herein. Provide structural steel incidental to the electrical work conforming to the requirements given under Structural Steel – General Requirements.

Provide vibration proof mounting hardware, wire and cable terminals.

Submit for approval, as soon as possible, details of any departures from the plans or the specifications that are deemed necessary and reasons therefore on. No such departures shall be made nor work started without approval of the engineer.

B.4 Bridge Control System Vendor

Use a single, qualified control system vendor for the manufacture and/or furnishing and assembly of all apparatus and equipment comprising the bridge control systems, including, but not limited to, limit switches, motor controls, control cabinets, special control panels, programmable controllers, interfacing equipment, laptop hardware for local troubleshooting, and other apparatus required to provide a complete functioning system. The vendor shall assemble the control panels and console at an Underwriters Laboratory approved Facility according to UL 508.

The control system vendor is required to have experience in providing electrical control systems for movable bridges of various types, including bascule, vertical-lift, swing bridges, and control systems, including hydraulically operated bridges and programmable controllers. Identify a minimum of five movable bridges for which the system vendor has provided complete systems, including programmable controller logic within the past 10 years.

The following applies to the control system vendor:

- Assume complete system responsibility for the integrated functioning of all components to provide a satisfactory assembled system operating according to specified requirements.
- Assume responsibility for the integration of new controls with the existing equipment at both Mason Street and Main Street.
- Assume responsibility for the detailed schematics and fabrication of the total control systems to ensure compatibility of equipment and suitability for the intended system functioning.
- Assume responsibility for developing the program for the Programmable Logic Controller (PLC) based on the performance specification for operation of the bridges.
- Assume responsibility for developing and integrating PanelView operator display and diagnostic screens.
- Provide supervisory assistance in the installation of equipment to ensure maximum reliability and ease of maintenance.
- During testing of the electrical systems, it may be found that deviations from the performance specifications are required for optimum bridge operation. Include all hardware and software required for these modifications in the control system vendor scope of work at no additional cost to the department.
- Provide a field service staff having the capability of providing services for field coordination of construction and final adjustments to the drive system. Upon final acceptance of the bridges, provide on-call warranty service for a period of 1 year. Field staff shall be capable of responding to an emergency within 6 hours.

Provide written certification of compliance with specified requirements for the control system vendor. Include this certification in the bid documents. The certification shall be subject to approval by the engineer.

B.5 Factory Inspection and Testing

The control cabinets and other apparatus fabricated or assembled by the control system vendor shall be subjected to shop inspection to demonstrate compliance with all specified requirements. The inspection is intended as a means of facilitating the work and avoiding errors, and it is expressly understood that it will not relieve the contractor of responsibility for imperfect material or workmanship.

For Main Street, assemble and temporarily interconnect for operational testing at the plant of the control system vendor the programmable controllers with all required interfacing equipment. Limit switches shall be simulated with temporary switches, motor starters with pilot lights, and hydraulic systems shall be simulated with pilot lights and loads on suitable resistive elements. The testing is intended to demonstrate proper programmed operation of all bridge drives and auxiliary equipment according to specified requirements for system functioning, including the programmable controllers and all control relays and motor starters.

For Mason Street, shop testing shall not be required.

Perform all tests required herein in the presence of the engineer or his authorized representative. Do not ship any equipment from the factory until it has been released for shipment by the engineer. Provide notification sufficiently in advance of the date of the tests so that arrangements can be made for the engineer to be present at the tests.

During the witnessed inspection, the engineer will check nameplate legends, conductor identifications, instrument scales, escutcheon plate engraving, and all other details of construction for conformity with specified requirements.

B.6 Programmable Logic Controller System (PLC)

B.6.1 General

Bridge control logic functions shall be performed by a Programmable Automation Controller system, which shall provide for operation of the bridge and its auxiliaries according to the system functioning specified herein and the control logic shown on the plans.

The design and specifications were written around the Programmable Automation Controller by Allen Bradley (AB) ControlLogix brand PLC with components, hardware and remote input/output drops; no other equipment shall be accepted. The PLC shall be of modular construction, provide high-speed peer-to-peer networking, and be programmable with ladder logic.

The PLC system will consist of redundant 1756-L72 CPU's. Only one CPU will be in use at a time, and the other CPU will be offline and de-energized. A selector switch mounted on the door of the control cabinet will select the CPU in use.

Modules are defined herein as devices that plug into a chassis and are keyed to allow installation in only one direction. The design must prohibit upside down insertion of the modules as well as safeguard against the insertion of a module into the wrong slot or chassis via an electronic method for identifying a module. Electronic keying performs an electronic check to ensure that the physical module is consistent with what was configured. The Programmable Automation Controller shall have downward compatibility whereby all new module designs can be interchanged with all similar modules in an effort to reduce obsolescence. The Programmable Automation Controller shall have the ability to be updated electronically to interface with new modules.

All hardware of the Programmable Automation Controller shall operate at an ambient temperature of 32° F to 140° F, with an ambient temperature rating for storage of - 40° F to 185° F. The Programmable Automation Controller hardware shall function continuously in the relative humidity range of 5% to 95% with no condensation. The Programmable Automation Controller system shall be described and tested to operate in a high electrical noise environment.

The Programmable Automation Controller shall have the capability of addressing over 100,000 discrete points or 4000 analog points. It shall also have the ability to communicate with up to 500 connections that contain I/O. Each input and output module shall be self-contained and housed within a chassis. These chassis, with their respective modules, shall contain up to 512 (16 modules x 32 pts/module, using a 17 slot chassis) unique points. The Programmable Automation Controller shall include as an optional feature the capability of addressing remote input and output modules on ControlNet, DeviceNet, EtherNet/IP, "RIO", HART and Foundation Field Bus.

The Programmable Automation Controller shall use multiple independent, asynchronous scans. These concurrent scans shall be designated for processing of input and output information, program logic, and background processing of other controller functions. Input and output devices located in the same backplane (local I/O) as the CPU will produce at the rate of the configured RPI (Requested Packet Interval), and for discrete input modules enabled for Change of State (COS), at the time any point changes state.

The Programmable Automation Controller shall have the ability to communicate with multiple remote I/O racks or devices configured with multiple I/O modules. Networks that allow remote I/O include "Remote I/O", ControlNet, EtherNet/IP, DeviceNet, HART, and Foundation Field Bus. It shall be possible to communicate with remote I/O racks or other PACs via fiber optic cable by inserting fiber optic converters into the links. The fiber link must support distances up to 82,000 cable feet. Redundant fiber optic cabling shall be an option.

The Programmable Automation Controller shall have the ability to support multiple data communications networks in the same chassis by using DH+, DH-485, HART, ControlNet, DeviceNet, Ethernet/IP, Programmable Multi-Vendor Interface (RS232) modules, as well as other commonly used networks.

The Programmable Automation Controller shall have one dedicated 9-Pin D-shell serial port, which supports RS-232-C signals at baud rates from 110bps to 38.4Kbps or a Universal Serial Bus Type B port (USB 2.0) communicating at 12mb/sec The 9-Pin serial port shall be accessible in control logic and provide support for DF1 Master, DF1 Point to point, DF1 Slave, DF1 Radio Modem, Modbus Master/Slave, DH-485 (messaging only) and ASCII Read/Write communication protocols. The USB port is a device only programming port. Both RS-232 and USB ports must be usable for programming and data monitoring purposes.

B.6.2 Controller Hardware

The CPU shall be a self-contained unit, and will provide control program execution and support remote or local programming. This device will also supply I/O scanning and inter-controller and peripheral communication functions. The operating system firmware shall be contained in non-volatile memory. An option shall be possible to store both the user program and system firmware in a removable non-volatile memory for backup/restore purposes.

The operating system firmware can be updated via a separate software update tool to allow for easy field updates. The controllers shall allow the operating system to be updated using a suitably configured removable non-volatile memory card. The controller shall contain a minimum of 4 Mbytes of user memory.

In a single chassis system all system and signal power to the controller and support modules shall be distributed on a single backplane. No interconnecting wiring between these modules via plug-terminated jumpers shall be acceptable.

The CPU within the system shall perform internal diagnostic checking and give visual indication to the user by illuminating a "green" (OK) indicator when no fault is detected and a "red" (OK) indicator (Blinking or Solid) when a fault is detected or by way of a display screen scrolling an error code and message. The front panel on the Controller shall include color LED indicators or 4-digit display showing the following status information:

- Program or Run mode of the controller
- The fault status of the controller.
- I/O status
- RS-232 or Secure Digital (SD) activity
- Battery or Energy storage module (ESM) status
- Force LED

The front panel of the Controller shall include a mounted keyswitch. The key shall select the following Controller modes: RUN – No control logic edits possible, program always executing; PROGRAM – Programming allowed, program execution disabled; and REMOTE – Programming terminal can make edits and change controller mode, including test mode, whereby the logic executes and inputs are monitored, but edits are not permanently active unless assembled. The front panel of the Controller shall include a holder and a connector for a lithium battery or an energy storage module to provide power backup for user programs and data when the main power supply is not available. The front panel of the Controller shall include a 9-pin D-shell serial RS232 port or USB port, to support upload and download, online edits, firmware upgrades, and bridging to other modules in the same chassis.

All system modules, local and remote chassis shall be designed to provide for free airflow convection cooling. No internal fans or other means of cooling, except heat sinks, shall be permitted. All system modules including the controller may be removed from the chassis or inserted in to the chassis while power is being supplied to the chassis without faulting the controller or damaging the modules. This is known as Removal and Insertion Under Power (RIUP). Alternately a software configurable option shall exist to fault the controller if required.

B.6.3 Power Supplies

The Programmable Automation Controller shall operate in compliance with an electrical service of 85 to 265 VAC (120 to 220 VAC nominal), single phase, in the frequency range from 47 to 63 Hz, or 18-32 VDC (24 VDC nominal).

A single main power supply shall have the capability of supplying power to the CPU and local input/output modules. Other power supplies shall provide power to remotely located racks. The power supply shall automatically shut down the Programmable Automation Controller system whenever its output power is detected as exceeding 125% of its rated power. The power supply shall monitor the incoming line voltage for proper levels. When the power supply is wired to utilize AC input, the system shall function properly within the range of 85 to 265 VAC. When the power supply is wired to utilize DC input, the system shall function properly within the range of 18 to 32 VDC. The power supply shall provide surge protection, isolation, and outage carry-over of up to 6 cycles of the AC line (120-240 VAC, 50/60 Hz) or 40 ms @ 24 VDC. Design features of the Programmable Automation Controller power supply shall include a diagnostic indicator mounted in a position to be easily viewed by the user. This indicator shall provide the operator with the status of the DC power applied to the backplane. In addition, a means of disabling power to the CPU shall be possible from a power disconnect switch mounted in a position easily accessible by the operator. At the time of power-up, the power supply shall inhibit operation of the controller and I/O modules until the DC voltages of the backplane are within specifications. In addition to the electronic protection described above the power supply shall offer a failsafe fuse that is not accessible by the user.

B.6.4 Program Creation and Storage

Memory state shall be selectable to allow for the most economical match to the intended application. It shall be possible to upgrade to a controller with a larger memory size simply by saving the program, upgrading the controller and downloading the program to the new system without having to make any program changes. Memory shall be backed up by either battery or energy storage module and are capable of retaining all stored program data through a power cycle. A low battery condition must be detectable in ladder logic, but shall not automatically generate a major fault. A low energy condition will generate a minor fault and will be detectable in ladder logic.

The controller will write all variable data to internal nonvolatile memory storage (Flash) during the power down cycle. The controller shall provide the capability to use commercially available, removable nonvolatile memory storage. The card shall be available from the supplier as an industrial rated device suitable for use in the same environment as the controller.

The controller will have the ability to store the user program, controller firmware and firmware for all other modules residing in the same chassis to the removable nonvolatile memory card. Additionally when memory is restored a user selectable option to be restored in Run mode or Program mode shall be provided. The controller shall have the capability to ensure, that if required modules in the chassis are flashed using the firmware files stored on the removable nonvolatile memory card, to the correct revision level for the project. The removable nonvolatile memory card shall support a Windows file system allowing multiple files to be stored on the card. The user can manually trigger the controller to save or load from the card and also configure the controller to load from the card on power up. The

operator should be able to backup volatile memory, including data and program logic onto a personal computer storage device.

All user memory in the controller not used for program storage shall be allocable from main memory for the purpose of data storage. The Programmable Automation Controller system shall be capable of storing 4 data types:

- Predefined
- User-defined
- Module-defined
- Add-on defined

Pre-defined data types include the following: alarm, axis, bool, cam, cam-profile, control, coordinate system, counter, etc. User-defined data is limited to structures. Each structure contains one or more data definitions called members. Object includes a structure for each I/O module and system or module specific information (hidden from user). Add-on defined data type includes the Local and Parameter tags of the add-on instruction. It does not include the logic. Any data can be displayed in ASCII, Binary, Octal, Hexadecimal, or Decimal radices. Function-specific data types such as PID, Axis, Axis Group or Message shall have dedicated displays available annotating the meaning of specific control bits and words within them and allowing for selective control where appropriate.

If instructions or entire rungs are intentionally deleted from an existing logic program, the remaining program shall be automatically repositioned to fill this void. Whenever contacts or entire rungs are intentionally inserted into an existing program, the original program shall automatically be repositioned to accommodate the enlarged program. All rung comments shall maintain their original links.

The number of times a normally open (N.O.) and/or normally closed (N.C.) contact of an internal output can be programmed shall be limited only by the memory state to store these instructions. The number of times a timer or counter can be programmed shall be limited only by the memory state to store these instructions. Controller programs shall have immediate access to the sub elements of control structures by address and sub element mnemonic, such as timer accumulator value, timer done bit, or PID Process Variable value.

B.6.5 Interfacing and Peripherals

The programming software shall be on a Windows 7 based workstation. The workstation shall have the capability to be remotely located a maximum of 10,000 cable feet from the controller over DH+ at 57.6 K-Baud or a maximum of 3280 cable feet from the controller over ControlNet. The workstation shall also be able to connect via Ethernet or RS232 for remote access.

The Programmable Controller system shall be able to interface with a data terminal, which is RS-232-C compatible (up to 38400 baud) or via USB 2.0 @ 12 mb/s to generate hard copy messages. The system shall have the capability to interface to a floppy disk, CD-ROM,

DVD and/or a hard disk for loading a user program into, or recording the contents of, the controller's memory. It shall be possible to load or record the entire contents of memory.

B.6.6 Communication Interfaces

The Programmable Automation Controller shall have communication interface modules for Ethernet/IP, ControlNet, DeviceNet, DH+, DH-485, Remote I/O (RIO), and RS232, HART and foundation field bus.

The Ethernet/IP interface shall support the following:

- Standard TCP/IP communications
- Standard Ethernet media (10base2, 10base5, 10baseT, 100baseT, fiber)
- CSMA/CD access method
- Subnet masking
- Standard repeaters, bridges, routers, host computers, peer PLCs.
- RJ-45
- Bootp client
- Manual configuration using RSLogix5000, RSLinx, or BootP/DHCP Servers.
- Programmable controller messaging to peer controllers and workstations
- I/O Control
- Device Level Ring (DLR)
- CIP Motion (Motion over Ethernet/ IP)

The Ethernet/IP interface shall support bridging between Ethernet/IP links within a ControlLogix chassis. The Ethernet/IP interface shall support bridging to ControlNet, DH+, DH-485, DeviceNet, and other controllers. Bridging allows for configuration (program up/download) and data collection.

The DH/RIO interface shall support the following:

- Two channels of communications
- Each channel independently configurable for DH+ or RIO
- DH+ baud rate shall be 57.6, 115, 230 Kbaud
- DH+ will support routing tables
- RIO baud rates shall be 57.6, 115.2, 230.4 KBaud
- Message error checking
- Retries of unacknowledged messages
- Diagnostic checks on other stations

The DH+ interface shall support bridging to/from ControlNet, EtherNet and DeviceNet.

B.6.7 Programming

The programming format shall be IEC 1131-3 compliant Ladder Diagram (LD), Function Block Diagram (FBD), Sequential Function Chart (SFC), and Structured Text (ST) languages. The controller shall organize user applications as Tasks, which can be specified as continuous, periodic, or event based.

Periodic tasks shall run via an interrupt at a user-defined interval in one microsecond increments from 1 millisecond to 2000 seconds. The interrupt mechanism of periodic and event tasks shall adhere to the IEC 1131-3 definition of pre-emptive multitasking. The controller shall be able to accommodate a maximum of 32 individual tasks of which one can be continuous. The periodic and event tasks shall have an associated, user assignable priority from one to fifteen (one being the highest priority), which specifies that task's relative execution priority in the multitasking hierarchy. The event task can be triggered by hardware events (an input point) or software events (event instruction). Each task shall have a user settable watchdog timeout which is unique to that task. Each task can include a maximum of 100 programs, which can be prioritized for execution within the task. Each program can include routines programmed in LD, FBD, SFC, or ST languages. One of the routines can be specified as the main routine and one can be specified as an optional fault routine. All routines shall be capable of being edited when on-line. The number of routines which can be contained in a program is limited only by memory.

Variables within the controller shall be referenced as unique, default or user defined tags. Tag naming convention shall adhere to specifications in IEC 1131-2. Tags may be created off-line, on-line and at the same time the routine logic is entered. The system shall have the capability to store user tags names in the controller. Tags shall be available to all tasks in the controller (Controller Scoped) or limited in scope to the routines within a single program (Program Scoped) as defined by the user. Any tag shall have the ability to be aliased by another tag, which is defined and has meaning to the user. The ability to program control logic via tags of the Programmable Automation Controller shall exist.

It shall be possible to program ladder diagram rungs with the following restrictions:

- Series instruction count limited only by user memory
- Branch extensions limited only by user memory
- Branch nesting to six levels

The capability shall exist to interleave input and output instruction types on the same contiguous rung in the ladder diagram rungs. The capability shall exist to change a contact from normally open to normally closed, add instructions, change referenced tags, etc. It shall not be necessary to delete and reprogram the entire ladder diagram rung. It shall be possible to insert ladder diagram rungs anywhere in the program, even between existing rungs, insofar as there is sufficient memory to accommodate these additions. A single program command or instruction shall suffice to delete an individual ladder diagram rung from memory. It shall not be necessary to delete the rung contact by contact. A clock/calendar feature shall be included within the CPU. Access to the time and date shall be from the programming terminal or user program.

Latch functions shall be internal and programmable. The system shall have the capability to address software timers and software counters in any combination and quantity up to the limit of available memory. All management of these instructions into memory shall be handled by the CPU. Instructions shall permit programming timers in the "ON" or "OFF"

delay modes. Timer programming shall also include the capability to interrupt timing without resetting the timers. Counters shall be programmable using up-increment and down-increment. Timer instructions shall have a time base of 1.0 ms. The timing range of each timer shall be from 0 to 2,147,483,648 increments. It shall be possible to program and display separately the timer's preset and accumulated values.

The Programmable Automation Controller shall use a signed double integer format ranging from -2,147,483,648 to +2,147,483,648 for data storage of the counter preset and accumulated values. The Programmable Automation Controller shall store data in the following formats:

- Boolean values (0 or 1).
- Short Integer Numbers ranging from -128 to +127.
- Integer Numbers ranging from -32,768 to +32,767.
- Double Integer Numbers ranging from –2,147,483,648 to +2,147,483,647.
- Floating Point Numbers consisting of eight significant digits. For numbers larger than eight digits, the CPU shall convert the number into exponential form with a range of plus/minus 1.1754944 E -38 to plus/minus 3.402823 E +38.
- Long Integer Numbers consisting of 64 bits.

The capability shall exist to organize data in the form of User Defined Data Structures. All aforementioned data types, as well as others, can be used in such structures along with embedded arrays and other User Defined Structures.

The Programmable Automation Controller shall have support for integer and floating point signed math functions consisting of addition, subtraction, multiplication, division, square root, negation, modulus, and absolute value. Trigonometric instructions supported must include Sine, Cosine, Tangent, Inverse Sine, Inverse Cosine, and Inverse Tangent. These instructions must fully support floating-point math. Additional floating point instructions supported must include Log 10, Natural Log, and Exponential. It shall be possible to complete complex, combined calculations in a single instruction, such as flow totalizing or equations of the format ((A+((B-C)*D))/E).

File function instructions supported shall also include Sort, Average and Standard Deviation. Value arrays shall be limited in size only by the amount of available memory. Arrays shall be configurable with one, two or three dimensions. The CPU shall support indexed addressing of array elements. Array element manipulation instructions such "array copy" (COP), “array copy with data integrity” (CSP) and "array fill" (FLL), "array to array" (MOV), "element to array" (FAL), "array to element" (FAL), and "first in-first out" (FIFO) shall be supported by the system. The four function and math instructions and instructions for performing "logical OR", "logical AND", "exclusive OR", and comparison instructions such as "less than", "greater than", and "equal to" shall be included within the system. All instructions shall execute on either single words or array elements.

For any module specifically associated with the Programmable Automation Controller, it shall be possible to configure operation and query the current status of all channels through controller scoped tags without any programming.

The system shall contain instructions, which will construct word shift registers (SQI, SQO, and SQL). Additional instructions shall be provided to construct synchronous bit shift registers (BSR and BSL).

The Programmable Automation Controller shall have a jump instruction which will allow the programmer to jump over portions of the user program to a portion marked by a matching label instruction.

The Programmable Automation Controller shall have an embedded motion planner capable of doing coarse motion planning for up to 100 axes. This planner must be the highest priority task of the controller.

The Programmable Automation Controller shall have a ladder diagram instruction interface to the motion planner which allows the user to request that the motion planner create and execute a specific motion profile. The profile can be changed dynamically through the ladder diagram program.

The Programmable Automation Controller shall have the ability to provide a master system clock and the 1588 PTP v2 CIP Sync object to allow time synchronization and transport and routing of a system clock to the control system and motion axes in a local chassis or on an Ethernet/IP network.

It shall be a function of the CPU to automatically manage all data types. For example, if a word stored in an Integer tag is transferred into a Floating Point tag, the CPU shall convert the integer value into floating point prior to executing the transfer.

In applications requiring repeatable logic it shall be possible to place such logic in a subroutine section. Instructions which call the subroutine and return to the main program shall be included within the system. It shall be possible to program several subroutines and define each subroutine by a unique program file designator. The controller will support nesting of subroutines up to available stack at the moment of the call. It shall be possible to pass selected values (parameters) to a subroutine before its execution. The number of these parameters is limited only by available memory. This allows the subroutine to perform mathematical or logical operations on the data and return the results to the main program upon completion. These subroutines will be accessed by jump-to-subroutine instructions.

The system shall have the capability to enter rung comments above ladder diagram rungs. These comments may be entered at the same time the ladder logic is entered. The program shall be fully commented.

The capability shall exist for adding, removing, or modifying logic during program execution in routines of LD, FBD, SFC, and ST languages. When changes to logic are made or new logic is added it shall be possible to test the edits of such logic before removal of the prior logic occurs. It shall be possible to manually set (force) either on or off all hardwired discrete input or output points from the programming panel. It shall also be possible to manually set (force) an analog input or output to a user specified value. Removal of these forced I/O points shall be achieved either individually or totally through selected keystrokes. The programming terminal shall be able to display forced I/O points.

A means to program a fault recovery routine shall exist. When a major system fault (Controller Fault) occurs in the system, the controller fault recovery routine shall be executed and then the system shall determine if the fault has been eliminated. If the fault is eliminated, program execution resumes. If the fault still exists, the system will shut down. The capability shall exist for each program to have its own fault routine for program fault recovery. Each having the same features as the controller based fault routine. An instruction shall be available to give the control program diagnostic information, state control, and sequencing of a process simultaneously, while allowing the capability of user-friendly state programming techniques.

An instruction shall be supported to incorporate closed loop control systems. The "proportional", "integral", and "derivative" elements shall be accessible to the user in order to tune a closed loop system. This instruction must fully support floating-point math.
The system shall support both bit and word level diagnostic instructions.

To facilitate conditional event detection programming, output instructions shall include "one shot" instructions, which may be triggered on either low-to-high (rising) or high-to-low (falling) rung conditions. To facilitate debugging, an "always false" instruction shall exist which may be utilized to temporarily inhibit the execution of control logic.

The controller shall support Master Control Reset (Relay) type functionality to selectively disable sections of logic.

The controller shall include direct support of FOR-NEXT loop constructions.

Controller files will have the ability to be exported and edited in L5k, (text) format or XML format.

UPS: Furnish and install four UPS units. The UPS shall be rated for 5 KVA (minimum). The UPS shall be rated to provide power for 20 minutes at half load and 10 minutes at full load. Provide UPS sizing calculations for engineer approval. The UPS shall be rated for 120 VAC input and 120 VAC output. The UPS output shall be a sine wave with less than 3% distortion. The UPS unit shall provide automatic bypass and an audible alarm upon UPS failure. The UPS shall have provisions for hardwired connections.

B.7 Human Machine Interface (HMI) Display

Furnish and install HMI display screens for all three bridges. They shall be panel PCs, Nematron Powerview iPC Series, or engineer approved equivalent by AIS or Varatech. Min requirements of i-Series Core Processor and Windows 7 or 10. They shall be provided with touch screen interfaces to allow for switching between screens, and Ethernet interfaces to allow for seamless connection into the bridge PLC networks.

The control system vendor shall be responsible for the development of the various display screens. The existing HMI for the Mason Street Bridge shall be used as a basis for developing the new screens with input from the engineer and the department. At a minimum, the following screens are anticipated:

- A general display with position, motor power and brake status
- A system diagnostics screen
- A fault history screen.
- Any additional screen requested by the department or as required.

B.8 Noise Filter

Furnish and install one active tracking noise filter on the input of each PLC rack. The noise filter shall be a series connected high frequency noise filter with transient protection. It shall offer hard wired connection to all critical loads and rated for an industrial environment and equipment. It shall reduce mode transient to +/- 2 volts, have a surge capacity of 45,000 amps, provide transient protection in all modes (line to neutral, line to ground, and neutral to ground), have an LED power indication, and be UL approved. The 120 VAC MCOV shall be rated 150 VRMS. The line frequency response time shall be less than 0.5 nano-seconds. The operating temperature shall be –40° F to 115° F at full load. The unit shall be capable of protecting against a peak surge current of 15,000 amps in all modes. The noise filter shall be manufactured by Emerson Electric, Sola, Control Concepts, or engineer approved equal.

B.9 Ethernet Radio Modems

The Ethernet radio modems shall be a high-speed wireless Ethernet radio, with PoE and Serial Encapsulation. They shall operate at high speed (54 Mbps), low latency communications, using the IEEE 802.11b/g (2.4 GHz band) and 802.11a (5 GHz band) standards. They shall conform to IEEE 802.11a/b/g. They shall be open standard/nonproprietary. They shall utilize Radio-based IGMP snooping/querying to filter multicast industrial Ethernet maximizing bandwidth. They shall be provided with metal enclosures, rated for industrial operating temperatures, and shall be vibration and shock resistant. They shall be certification approved for use in hazardous locations and explosive atmosphere (ISA 12.12.01 Class I Div 2, ATEX Zone 2 Category 3).

They shall provide data and cryptographic strength security with WPA2 -802.11i with 128 bit AES encryption and CCM integrity check. They shall limit access to approved device MAC IDs.

They shall be provided with a built-in web server for browser-based configuration and remote diagnostics Included OPC Server for HMI-based wireless network diagnostics. They shall be provided with PC based software to properly configure the wireless network. The software shall allow a PC to view the network topology, assign IP addresses to radios for configuration, monitor network diagnostics, update radio firmware and detect the presence of other vendors' 802.11 radios on the network.

The radio modems shall have the following specifications:

- Frequency Band 802.11b/g 2.412 GHz to 2.462 GHz (FCC) GHz 802.11a5.725 GHz to 5.850 GHz (FCC) Wireless Standards 802.11a, 802.11b, 802.11g, 802.11i
- Transmit Power (Programmable) Up to 50 mW without amplifier
- Channel data rates (Modulation)
- 802.11b: 11, 5.5, 2, 1 Mbps(DSSS -BPSK, QPSK, CCK)
- 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps (OFDM)
- 802.11a: 54, 48, 36, 24, 18, 12, 9, 6 Mbps (OFDM)
- Receiver Sensitivity (Typical)
- -90 dBm @ 1 Mbps
- -85 dBm @ 11 Mbps
- -82 dBm @ 24 Mbps
- -75 dBm @ 54 Mbps
- Security WPA2 -802.11i with 128 bit AES-CCM
- Legacy WPA TKIP, WEP support
- MAC ID filter
- Admin password
- Enclosure Extruded aluminum with DIN and panel mount
- Shock IEC 60068 2-6 (20 g, 3-Axis)
- Vibration IEC 60068 2-27 (5 g, 10 Hz to 150 Hz)
- Ethernet Ports One 10/100 Base-T connector, shielded RJ45
- IEEE 802.3, 802.3u, 802.3x
- Antenna Ports (2) RP-SMA connectors

They shall operate at an operating temperature range of -40° F to +167° F and humidity up to 100% RH non-condensing.

They shall require an external power supply of 10 VDC to 24 VDC and have an average power draw of less than 6 watts.

The radio modems shall be provided with directional antennas and associated cabling as recommended by the manufacturer. A radio survey company approved by the manufacturer shall conduct a site survey to determine optimum frequency for the system and determine the correct antennas. If, as recommended by the site survey, the contractor will coordinate with the proper authorities for the State to acquire specific frequencies to allow for unhindered wireless communication. This site survey shall be included in the bid price.

The radio modems shall be manufactured by ProSoft, Cisco, D-Link or engineer approved equal.

B.10 Inclinometers

The inclinometers shall be liquid capacitive gravity based sensors with integrated sensor and excitation electronics. The thermal drift of the primary sensor shall be further compensated by an electronic equalization of the temperature. They shall have internal integrated highly stable voltage regulators making it possible to supply the inclinometer from any unregulated supply or battery as low as + 8 V and up to +30 V DC. The power shall be obtained from the measurement current loop, enabling operation with a two wire connection. The measuring principle shall assure a linear angle output with 4…20 mAs calibrated to equal the measuring range of the sensor.

The inclinometers shall be suited for industrial use where high accuracy and long-term stability are required in a noisy environment and where high temperature changes occur and non-stable supply voltages are present such as bridges, mining, construction equipment and process machinery.

Provide inclinometers with the following characteristics:

- Temperature compensated
- 4…20 mA output
- Non-regulated +8…+30 V power supply
- Integrated sensor electronics with 4…20 mA excitation
- Linear output characteristics
- 2 wire connection – sensor power obtained from the current loop
- High measurement accuracy
- Very low relative linearity errors
- High long-term stability
- EMC protected
- Vibration and shock insensitive due to non-mechanical internal parts
- Hermetically sealed housing to IP67
- Sensor galvanically isolated from housing
- Sensor zero mechanically adjusted with mounting ring
- Current loop limitation
- Hysteresis free measuring signal
- Measuring Range: ±80°
- Resolution: < 0.01 °
- Sensitivity: 0.1mA/ °
- Max. Non-Linearity: < 1*10-3 FS
- Transverse Sensitivity: < 1% at 45° tilt
- Response Time: < 0.3 s
- Temperature Drift of Sensitivity: < -0.01% / °C
- Temperature Drift of Zero: < ±10-3 °/°C
- Zero Offset: 12 mA

- Power Supply: 8…30 VDC non-regulated (either polarity)
- Current Consumption: Approx. 10 mA
- Housing: 30% Glass Filled PBT Plastic
- Environmental Protection: IP65
- Mounting: Flat Vertical Surface with Supplied Mounting Ring
- Operating Temperature: -40° F to +185° F
- Storage Temperature: -49° F to +194° F

The inclinometers shall be manufactured by Reiker, Turck, Shavetz or as approved by the engineer.

B.11 Control Apparatus and Miscellaneous Equipment

B.11.1 General

Control apparatus shall conform to the applicable requirements of NEMA Publication No. ICS, latest revision, Industrial Control and Systems, rated as shown on the plans or as required herein. Where specific manufacturers part numbers are called out it is to specify a type of device, equivalents by Allen Bradley, Square D, Siemens, Cutler Hammer, General Electric or engineer approved equal are all acceptable.

B.11.2 Circuit Breakers

All branch circuits from the power buses shall be protected by molded-case circuit breakers mounted on the control panels. All breakers shall have quick-make and quick-break contacts, and the mechanism shall be trip-free and trip indicating. All circuit breakers and motor circuit protectors shall be provided with at least two form C auxiliary contacts for PLC input and status indication. Frame sizes shall not be less than 100 amperes. The breakers shall be equipped with thermal-magnetic trips or adjustable, instantaneous, magnetic trip units, with trip rating as shown on the plans or as required. Molded-case circuit breakers shall meet the requirements of the latest revision of NEMA Publication No. AB1. The service entrance circuit breakers are to be 600 volt rated, frame size as indicated on the plans and shall be provided with electronic trip unit with independently adjustable short time pick-up and time delay, set to trip as per the plans and motor operators with internal limit switches to provide for service isolation. Interrupting capacity shall be no less than 100,000 AIC. Circuit breakers shall be Westinghouse Series C, Type LD with LS trip unit, Type TA or engineer approved equal manufactured by General Electric or Square D Company.

B.11.3 Control Relays

Auxiliary control relays shall be multi contact magnetic relays with contacts rated at 10 amperes, 600 volts, on a continuous basis. Relays known to meet the specified requirements are the Square D class 8501 type X or approved equal.

B.11.4 Safety Relays

Safety relays shall be provided for emergency stop relays. They shall be multi contact magnetic relays with contacts rated at 10 amperes, 600 volts, on a continuous basis. They shall have mechanically interlocked contacts with the number of poles required, tamper resistant covers, and visible indication of the state of the relays. Relays known to meet the

specified requirements are the Allen Bradley 700s Heavy Duty Safety Control Relays or approved equal.

B.11.5 Selector Switches and Pushbuttons

Pushbuttons and control switches shall be heavy-duty, oil-tight, contact blocks operated by glove handle selector knobs, key switches and push-button operators as indicated on the plans. Contacts shall be fine silver, capable of interrupting 6 amperes at 120 volts AC, and of continuously carrying 10 amperes. Switches and pushbuttons shall be Square D class 9001, type K, NEMA 4 or approved equal.

B.11.6 Indicating Lights

Indicating shall be heavy-duty, oil-tight pilot lights with one or two fields as required as per the plans. They shall be provided with LED lamps the color of the lamp lens and shall be rated at 120 VAC. Where group testing cannot be accomplished through the PLC the lights shall be provided with a push to test feature. All lenses shall be glass, with color and marking as shown on the plans.

B.11.7 Terminal Blocks

Terminal blocks for conductors of Size No. 8 AWG and smaller shall be stud and nut type one-piece blocks of phenolic or 257 ºF material recognized under the UL Component Recognition Program. Barriers shall be not less than 1/2-inch high and 1/8-inch thick and shall be spaced 5/8 -inch center-to-center. Straps, studs and nuts shall be of brass, nickel plated for use in highly corrosive atmospheres, and shall be rated for 50 amperes for a terminated conductor. The blocks shall provide a withstand voltage rating of 600 V per IEEE switchgear standards. The terminal blocks shall provide studs and nuts suitable for use with flanged fork wire connectors. Corrosion resistant marking strips shall be provided for conductor identification. At least ten- percent spare terminals shall be provided. Terminal blocks shall be Buchanan Type 2B112, General Electric Series CR 151B or Marathon 1500 Series or engineer approved equal.

B.11.8 Terminal Connectors

Terminal connectors shall be seamless, heavy duty compression locking fork terminals manufactured from pure electrolytic copper tubing. Terminals shall be tin plated and provided with a double-thick tongue and insulation grip. Conductors that do not receive a terminal lug shall receive a compression ferrule properly sized for the conductor. No wire size no. 10 AWG or smaller shall be allowed to have bare strands. Terminals and compression tools must be approved by the engineer.

B.11.9 Power Distribution Blocks

Power distribution blocks for all conductors larger than No. 8 AWG, shall be finger-safe, fabricated from copper, sized as required. Finger-safe fully insulated block shall ensure that no one can touch live parts. They shall be provided with recessed termination screws and wire openings providing IP20 grade protection and qualify as "finger-safe" per IEC 529, integral DIN rail adaptors allowing for quick and easy installations on 35mm DIN rail, and captive termination screws. Provide end anchors for rigid end stops.

B.11.10 Nameplates

Nameplates shall be provided for all aforementioned devices and shall be made of laminated phenolic plastic with white front and back and black core and shall be not less than 0.09-inch thick. The lettering shall be etched through the front layer to show black engraved letters on a white background. Lettering shall be not less than 0.24-inch high, unless otherwise detailed on the plans. Nameplates shall be securely fastened to the equipment with stainless steel screws.

B.11.11 Bridge Control Cabinets

Control panels enclosed in freestanding cabinets shall be furnished and installed in the operator house and machinery spaces where shown on the plans. All circuit breakers, UPS, PLC racks, switches, contactors, relays, regulating equipment, and other apparatus for control of the span and its auxiliaries shall be mounted on these enclosed panels. The arrangement and line-up of the individual control cabinets shall be as shown on the plans.

All equipment in each control cabinet shall be mounted on sheet-steel bases, and each device shall be front-connected, front-wired, and removable from the front. The equipment in all cabinets shall be arranged for ease of access and for safety and convenience of operation. Special care shall be taken to obtain a systematic and neat arrangement of the equipment. Each device shall be suitably named and plainly marked by a laminated nameplate mounted near the device on the panel. Each nameplate shall show an approved descriptive title for the apparatus, together with the device designation appearing on the schematic wiring diagrams.

Each indoor control cabinet shall be a NEMA Type 12 enclosure constructed of No. 12 gauge sheet-steel and shall be reinforced with steel angles or channels to provide a rigid, freestanding structure. Exterior control cabinets shall be NEMA 4X or NEMA 12 stainless steel. The control cabinets shall be provided with hinged doors on the front of each panel section. Door panels shall be gasketed and shall be provided with three-point, vault-type latches. Drive and control panels shall be provided with fan and filter ventilation. All hardware shall be corrosion resistant. Thermostatically controlled strip heaters shall be provided in each cabinet to prevent build-up of excess moisture. Each panel shall be provided with suitable interior light fixtures and a duplex receptacle.

Each control panel enclosure shall be as shown on the plans. If the final cabinet dimensions, as established by the manufacturer, should necessitate rearrangement or modification of the equipment in order to fit in the available space, such rearrangement or modifications shall be made and at no extra cost. The final arrangement of all equipment in the operator house shall be subject to the approval of the engineer.

The indoor control panel enclosures and all metal reinforcing shall be painted inside with two coats and outside with three coats, consisting of one coat of primer followed by one coat of gray enamel on the inside surfaces and two coats of gray enamel outside. The finish coat shall be ANSI 61 light gray enamel.

All contactors, relays, and other devices shall be of required current carrying and interrupting capacity. All apparatus shall be of substantial construction and shall conform to the requirements of NEMA Standards Publications ICS 1 and 2, 2000, for industrial control devices.

All wire shall be flame-retardant, ethylene-propylene insulated, switchboard wire, Type SIS. Conductors shall be stranded copper not smaller than No. 14 American Wire Gauge.

For each assembled control panel, all outgoing wire, No. 8 AWG or smaller, shall be connected to terminal blocks installed at the sides of the cabinet. The control panels shall also provide sufficient extra terminals to allow connection of all wires coming from limit switches and other devices that go on to the bridge control console and other locations as required, even though these wires do not connect to apparatus on the control panels. Spare terminals totaling at least 10 percent of those actually used shall be provided. Each terminal shall be identified per wire number shown on the contractor's schematic wiring diagrams.

All panel wiring shall be arranged systematically so that circuits can be readily traced. The wiring shall be installed in a network of troughs consisting of horizontal and vertical sections securely bolted to the panels. The troughs shall be fabricated from heavy duty Noryl plastic shaped into a channel cross-section. After installation of the wiring, an insulated, flanged cover shall be snapped over the open side of each trough section.

B.12 Raceways

Except for multi conductor, jacketed cables, all wiring shall be installed in conduit or stainless steel wireway.

All conduits shall be standard weight, threaded, rigid steel conduit conforming to the requirements of ANSI Standard C80.1. All conduits shall be hot-dip galvanized, inside and out, to meet the requirements of the above standard for protective coating. Conduit couplings and fittings shall be made of malleable iron or steel, hot-dip galvanized.

All conduits to be installed in outdoor locations shall be plastic coated as hereinafter specified. Conduit fittings, including couplings, unions, elbows, expansion and deflection fittings, and other items, shall also be plastic coated. Conduits and fittings, which are to be plastic coated, shall be provided with a factory-applied polyvinyl chloride (PVC) coating in the following manner. The exterior of the galvanized rigid steel conduit or fitting shall be coated with an epoxy acrylic, heat-polymerizing adhesive not to exceed 0.004 inch. A PVC plastic coating, 0.8mm to 1mm thick shall be bonded to the outside metal surface the full length of the pipe, except for the threads. The plastic coating shall have an 85+Shore A Durometer rating and conform to NEMA RNI-1998 (Type A), ASTM D746, and Federal Specifications LP406b, Method 2051, Amendment 1 or 25 September, 1952. A two-part red urethane, chemically cured coat shall be applied to the interior of all conduit and fittings. This internal coating shall be at the nominal 2-mil thickness and shall be sufficiently flexible to permit field bending without cracking or flaking. The Plasti-bond, PVC coated, hot-dip galvanized steel conduit shall be UL labeled and listed.

All hollow conduit and fittings, which serve as part of the raceway, shall be coated with the same exterior PVC coating and red interior urethane coating. The plastic exterior coating and the red interior urethane coating shall be factory applied by the same manufacturer who produces the hot-dip galvanized conduit. PVC coated conduit shall be installed according to the manufacturer's installation manual.

Unions to connect sections of conduit that cannot be joined to each other or to boxes in the regular manner shall be of malleable iron or steel, hot-dip galvanized, PVC coated.

Conduits shall not be less than ¾ inch in diameter. The interior surfaces shall have a smooth finish and be free of burrs or projections, which might cause injury to the cables. All conduits shall be free from blisters, cracks, or injurious defects and shall be reamed at each end after being threaded. Sections shall be connected to each other with screw couplings made up so that the ends of both conduits will butt squarely against each other inside of the coupling. Conduits shall be installed to be continuous and watertight between boxes and equipment. Conduits shall be protected at all times from the entrance of water or other foreign matter by being well-plugged overnight or when the work is temporarily suspended.

Conduit bends and offsets shall be made by cold bending using approved methods and equipment. The use of a pipe tee or vise for bending conduit will not be permitted. Conduit, which has been crushed or in any way deformed, shall be discarded. All bends shall be long sweep, free from kinks, and of such easy curvatures as to permit the drawing of conductors without injury. Conduit runs shall be made with as few couplings as standard lengths will permit, and the total angle of all bends between any two boxes or cabinets shall not exceed 90 degrees, unless otherwise approved by the engineer. The radius of curvature of pipe bends shall not be less than eight times the inside diameter of said conduit. Long running threads will not be permitted. Pull boxes shall be used whenever necessary to facilitate the installation of the wire.

Except for installation indoors or where specifically permitted by the engineer, condulets or conduit bodies shall not be used for pulling conductors or for making turns in conduit runs or for branching conductors. Condulets or conduit bodies, where permitted, shall consist of malleable iron castings with gasketed covers of the same material and fastened with brass cover screws. The bodies shall be hot-dip galvanized, and PVC coated when used with PVC coated conduit.

Where conduits pass through the floors or walls of the houses, they shall be provided with PVC pipe sleeves for free passage of the conduits. After the conduits are installed, the openings shall be caulked with an elastic compound and escutcheon plates provided on the interior walls, ceilings, and floors.

Conduits and wireway shall be securely clamped and supported at intervals not exceeding five feet in length.

Conduit and wireway runs exposed on the steel structure shall be securely clamped to the steelwork. The conduit clamps, in general, shall consist of U-bolts attached to structural steel supports bolted to the members. The wireway clamps, in general, shall consist of manufacturer recommended stainless steel bracket hangers attached to structural steel supports bolted to the members. The wireway cover shall be on the top or on the side of the wireway and be clear of opening obstructions. The minimum thickness of the structural supports shall be 3/8 inch. Supports shall be arranged so that conduits and wireway rest on top of the support and conduit U-bolts rest on top of the conduits. The use of J-bolts to fasten structural supports or to clamp conduits will not be permitted.

All U-bolts and bracket hangers shall be provided with medium-series lock washers and hexagonal nuts. The bolts, nuts, and washers shall be of stainless steel conforming to the requirements of the Standard Specification for Stainless and Heat-Resisting Steel Bars and Shapes, ASTM Designation A276, Type 316.

Where conduits and wireways are to be mounted exposed on non-steel surfaces, they shall be securely clamped to the surface using bent plate pipe supports with back spacers held by not less than two bolts. The stock size for the bent steel plate supports shall be ¼ inch thick by 2 inches wide. Back plates shall be of 3/8 inch thick steel. Supports and spacers shall be hot-dip galvanized. Bolts shall be not less than ½ inch diameter and shall be of stainless steel conforming to the requirements specified for U-bolts.

At any point where a conduit crosses an expansion joint longitudinally or where movement between adjacent sections of conduit can be expected, conduit expansion fittings shall be installed. The fittings shall be bronze expansion fittings and shall be provided with flexible bonding jumpers to maintain the electrical continuity across the joints. The fittings shall permit a total conduit movement of 8 inches and shall be engineer approved equal to the O.Z./Gedney Type EX, Spring City Type EF, or the Crouse-Hinds Type XJ.

At any point where a conduit crosses a joint laterally or where an offsetting type movement between adjacent sections of conduit can be expected, expansion and deflection fittings shall be installed. The fittings shall permit a movement of ¾ inch from the normal in any direction. The fittings shall be the O.Z./Gedney Type DX, Spring City Type EDF, Adalet Type STX, or engineer approved equal.

Flexible conduits for the connections between the rigid conduit system, all motors, and limit switches shall be made with sections of PVC coated, flexible, metallic, liquid tight conduit. Each section shall not exceed 18 inches without prior approval of the engineer.

All conduit embedded in concrete, insofar as possible, shall be completely encased by concrete of not less than 3 inches, measured in any direction, and shall be securely held in place during pouring and construction operations. A group of conduits terminating together shall be held in place by a template.

All conduit, wireway, and fittings shall be carefully examined before being installed, and all pieces having defects shall be set aside and removed from the site. All conduit bends shall be made with standard size conduit elbows. Conduit shall be assembled hand tight and then using strap wrenches tightened two more turns. Wrench marks or chuck marks shall be touched up with the appropriate touch-up compound. All cuttings and threading shall be performed as recommended by the conduit manufacturer. All conduit, enclosures, and fittings shall be mechanically joined together to form a continuous electrical conductor to provide effective electrical continuity.

Ends of abandoned conduits, spare conduits/wireway, and empty conduits/wireway and stubs shall be capped during and after construction, and care shall be taken to ensure that no moisture or other matter is in or enters the conduits.

All conduits shall be pitched not less than 1 inch in 10 feet (except by special permission). Where conduits cannot be drained to pull boxes, a drain "T" with drain fitting shall be installed at the low point and drained to a dry well of broken stone. Drain fittings shall be of stainless steel and shall be capable of passing 1 oz of water per minute.

The ends of all conduits projecting into boxes and equipment enclosures shall be provided with bronze insulated grounding bushings. The insulated portion shall be of molded phenolic compound, and each fitting shall have a screw type combination lug for bonding. Insulated bushings shall be the O.Z./Gedney Type RBLG, Spring City Type GB, or engineer approved equal manufactured by Appleton. All bushings in any box or enclosure shall be bonded together with No. 8 AWG bare copper wire. Where conduit hubs are provided use locking nuts with grounding terminals.

All conduits and wireway shall be carefully cleaned both before and after installation. Upon completion of the conduit and box installation, clear each conduit by snaking with a steel band, to which shall be attached an approved tube cleaner equipped with a mandrel of a diameter not less than 85 of the nominal inside diameter of the conduit and with a wire brush of the same diameter as the conduit, and shall then draw in the cables.

Both ends of each conduit or wireway run shall be provided with a brass tag having the same number stamped thereon according to the conduit diagrams, and these tags shall be securely fastened to the conduit ends with No. 20 AWG brass wire.

Separate conduits or wireways shall be furnished and installed to carry the circuit wiring to all span driving motors.

All wireways shall be 16 gauge 304 stainless steel bodies with covers and oil-resistant gasket and adhesive. The flanges shall be 10-gauge stainless steel. Wireway fittings, nipples, and elbows shall be 304 stainless steel. A solid oil-resistant gasket shall be positioned between flanges when sections and fittings are bolted together.

Wireways shall not be less than 6 x 6 inches. The seams shall be continuously welded and ground smooth. There shall be no holes or knockouts. The edges on all sections and fittings shall be smooth and rounded to prevent damage to cable and conductor insulation.

The wire way covers shall have heavy butt hinges and external screw clamps to assure complete seal between covers, gaskets, and bodies.

When wireway enters an enclosure, a box connector shall be used on the inside of the enclosure to ensure a tight and stable seal. Closure plates shall seal the end of wireway sections or runs.

At any point where a wireway crosses a joint, where an offsetting type movement between adjacent sections of conduit can be expected, or where movement between adjacent sections of conduit can be expected flexible wireway fittings shall be installed. The fittings shall be the wireway manufacturer's recommended fitting.

All conduits projecting into boxes and equipment enclosures shall be provided with water tight, weather proof, insulated throat conduit hubs. The conduit hubs shall be approved equal to Meyers Watertight Rigid Conduit Hubs except for PVC coated conduit which shall be provided with PVC hubs of the same manufacture as the conduits.

B.13 Boxes

All surface mounted pull, junction, and terminal boxes shall be of type 316 stainless steel, and shall be provided with full length hinged gasketed, covers held with stainless steel fast operating clamps to provide NEMA 4X watertight construction. They shall be manufactured by Hoffman, Weiggman, Hammond or engineer approved equal.

Interior and exterior boxes shall be provided with external mounting lugs and shall be fastened in position with stainless steel through bolts. Conduit entries shall be means of galvanized malleable iron hubs. PVC coated conduit shall use PVC coated hubs. No box shall be drilled for more conduits or cables than actually enter it. Exterior boxes shall be provided with drain fittings of the same type as specified for conduit drains.

All boxes shall be sized according to the requirements of the National Electrical Code and the dimensions as shown on the plans.

Terminal boxes shall be of sufficient size to provide ample room for the terminal blocks and interior wiring and for the installation of conduit terminations and multi conductor cable fittings. Interior mounting backpanels with tapped holes shall be provided for mounting the terminal blocks.

B.14 Hardware and Supports

Supports for conduits, wireways, cables, boxes, cabinets, disconnect switches, small limit switches, and other separately mounted items of electrical equipment shall be fabricated from stainless steel not less than 1/4-inch thick. All supporting members shall be included under the electrical work.

Structural steel brackets, boxes, and other equipment mounted on concrete surfaces shall be provided with a full neoprene gasket not less than 1/8 inch thick between the equipment and the surface of the concrete.

Expansion anchors for fastening equipment or brackets to concrete surfaces shall be wedge type anchor bolts, which shall be locked in place by an expansion wedge as the nut is tightened. All parts of the expansion anchors shall be of Type 303 stainless steel. Holes for the anchors shall be drilled to the size and depth recommended by the manufacturer using carbide tipped masonry drills.

Mounting bolts, nuts, washers, and other detail parts used for fastening boxes, disconnect switches, small limit switches, conduit clamps, cable supports, brackets, and other electrical equipment shall be of stainless steel conforming to the requirements of ASTM Designation A276, Type 316. Bolt heads and nuts shall be hexagonal and shall be provided with medium-series lock washers. Bolts smaller than ½ inch in diameter shall not be used, except as may be necessary to fit the mounting holes in small limit switches, boxes, and similar standard devices.

Usage of beam clamps for supporting conduits, boxes, or other equipment shall not be acceptable without prior approval of the engineer.

Preformed metal framing channels, such as Kindorf, Unistrut, Superstrut, etc., will not be acceptable for mounting or supporting electrical equipment, conduits, or boxes except where specifically approved by the engineer.

B.15 Wiring and Cables

B.15.1 General

Except where otherwise noted, wiring in conduits shall be single-conductor.

All wires and their insulation and covering shall be of a nationally recognized brand, acceptable to the engineer, and shall have marks always used on the particular brand for identifying it.

All wiring and cables shall conform to the requirements of NEMA Publication No. WC70-2000. Before wire and cable orders are placed with any manufacturer, submit for approval typical published test data for the type of insulation proposed, showing that it meets the requirements of NEMA Publication No. WC70. All materials used to fabricate insulated wiring and cables shall be certified to be from stock not more than one year old.

All conductors shall be of stranded copper large enough to carry safely the maximum currents required without injurious heating or serious voltage drop. Conductors shall not be smaller than No. 12 AWG, except as approved for control panel and console wiring or for lighting fixtures. All conductors shall be soft-annealed copper wire conforming to the requirements of NEMA Publication No. WC70. All conductors shall have Class B concentric stranding, except for conductors in flexible cables.

The insulation shall be a chemically cross-linked, polyethylene compound conforming to the requirements of Part 3.7 of NEMA Publication No. WC70. The thickness of insulation shall be that required for 600 volts rated circuit voltage listed under Column A of Table 3-1. Insulation type shall be Type XHHW-2.

Equipment ground conductors shall be bare, stranded, coated copper conforming to the requirements of NEMA Publication No. WC70, Part 2.

Single conductor wiring, including the insulating material, shall be tested to demonstrate that it meets specified requirements. The testing shall be done as stipulated in NEMA Publication No. WC70, Part 6. Wiring and cables shall not be shipped from the plant of the manufacturer until certified test reports on the cable properties have been approved by the engineer.

The conductor sizes and number of wires shown on the plans are the minimum permissible. Provide wiring and cables of sufficient size and number as may be required for the installation according to the wiring diagrams on his approved working drawings. In each conduit and multi conductor cable containing ten or more conductors, at least one spare wire shall be provided for every ten conductors actually used.

Wiring shall not be installed in any conduit before all joints are made up tightly and the conduits rigidly secured in place. The drawing of cables into conduits shall be done without injury to the wires or their insulation or covering. No lubricant of any kind shall be used for the pulling of wires, unless specifically authorized by the engineer. Sufficient slack shall be left in all cables to permit proper connections in boxes, cabinets, and enclosures.

Both ends of every single length of conductor shall be permanently and clearly tagged according to the same numbers or designations appearing on the approved wiring diagrams. Wire tags for marking the conductors shall be heavy duty, heat shrink, waterproof, permanently marked, and resistant to ultraviolet light deterioration. Numbers and letters shall be black or blue on a white background. Submit the proposed wire marking system and a sample of the wire markers to be installed to the engineer for approval. Each conductor, except for control and instrument conductors, shall be color coded with colored insulation. Color coding for 120/208 volt conductors shall be black for phase A or 1, red for phase B or 2, blue for phase C or 3, white for neutral, and green for equipment ground. Color coding for three phase 480 volt conductors shall be brown for phase A or 1, purple for phase B or 2, yellow for phase C or 3, gray for neutral, and green for equipment ground. Each conductor shall be marked at panelboard gutters, pull boxes, outlet and junction boxes and each load connection and shall include each branch circuit or feeder and control wire.

Conductors inside terminal boxes, the control console, and control panels shall be neatly formed into cables and laced with approved cable ties, with the individual conductors leaving the cable at their respective terminal points. These conductors shall be looped to allow not less than 76mm of free conductor when disconnected. The formed cables shall be

held securely away from the terminals and from contact with the enclosure by means of approved insulating supports.

All outgoing wires, No. 8 AWG or smaller, in the control console and control panels and in terminal boxes shall be connected to stud and nut style terminal blocks of molded phenolic compound. Terminals shall be suitable for use with solderless, locking fork, wire connectors. Connectors which extend beyond the ends of terminal block barriers, shall be furnished with an insulating sleeve covering the metal part of the connector. Taping of extended terminals will not be permitted.

Each terminal of all terminal blocks shall be permanently marked to show the same number or designation as appears on the wire connected thereto.

Splicing of wires will not be permitted, except for wiring to service lighting fixtures and receptacles. Wherever it becomes necessary to joint or branch conductors, terminal blocks shall be used, and wires shall be clearly tagged.

Multi conductor cables supported on the steelwork shall be secured thereto by bent plate cable clamps spaced not more than three feet on centers. The cable clamps shall be fabricated from stainless steel plates bent to suit the cables' outside diameters. In general, the clamps shall be fastened to structural brackets bolted to the steelwork.

Where multi conductor cables enter the control console or any cabinets or boxes, they shall be provided with watertight cable terminators. Each cable terminator shall provide a watertight seal by compressing a tapered neoprene-sealing ring around the outer jacket of the cable. Cable terminator parts shall be made of bronze and shall be manufactured by OZ Gedney, Appleton, Crouse Hinds or engineer approved equal.

Take insulation resistance readings on all circuits installed, with electronic equipment disconnected, and furnish to the engineer a complete record of the results obtained. These circuits shall include connected motors when tested. Conductors rated 600 volts, or more, shall be 1 Mohm, or more. Defective circuits shall be replaced at the contractor’s expense.

Flexible cable for specified connections shall be rubber-insulated, multiple-conductor portable cords conforming to the requirements of NEMA Pub. No. WC3, Part 7.7 or NEMA Pub. No. WC8, Part 7.4 for hard service. Each cable shall be provided with a heavy-duty neoprene jacket conforming to the requirements NEMA Pub. No. WC3, Part 7.7.5.1 or NEMA Pub. No. WC8, Part 7.4.5.1. Flexible cables shall conform to the National Electrical Code, Article 400 for hard service. Flexible cables shall be provided with strain relief fittings and basket weave cable grips at each end. Strain relief fittings shall be malleable iron, liquid tight strain relief fittings. The cable grips shall be stainless steel, heavy long, closed wire mesh, single weave with a double eye support. All mounting hardware shall be stainless steel.

B.16 Public Address System

The public address and paging (PA) shall be provided by a single approved vendor. Approval of vendor shall be at the sole discretion of the department.

The proposed systems at a minimum should be able to complete the following items:

- The PA system shall designed for heavy duty, industrial applications and shall include IP addressable amplifiers, amplified speakers, intercom stations and outdoor microphones, and shall be connected to a PC based public address workstation.

- The IP addressable amplifiers shall be single mode or duplex as required, and shall provide sufficient power to operate the loudspeakers. The amplifiers shall be housed in NEMA 4X stainless steel enclosures meeting the requirements of the bridge electrical system. They shall be provided with power supplies and audio transformers as required.

- The outdoor speakers shall be industrial type horns. Provide speakers immune to salt spray and be capable of 120 degree dispersion at 12 watts. Frequency response at 3 dB is 450 to 8000 Hz, ±0.5 dB.

- The outdoor rated microphones shall be provided with weather and wind protection appropriate for permanent outdoor usage. Microphone is to be protected from corrosive atmospheres and immune to moisture.

- Intercom stations shall be IP addressable exterior units designed for door accesss control.

- The system shall be controlled and communicated with by means of a PC based PA/Paging workstation. The software shall allow for all microphones, intercom stations, and amplifiers/speakers to be individually addressed and in any combination. The PC shall be provided with Windows 10 operating system and a 17” LCD monitor. It shall be provided with speakers and a suitable desk microphone. The PA system shall be provided with a dedicated network switch. IP addresses shall be provided by the department.

- The entire PA/Paging system shall have a one year warranty from time of final acceptance. This includes time and material.

- Provide all the software/ apps as part of the client computer and PA/Paging system.

- Provide all the manufacturers data sheets and manuals of all the products used as part of an operations and maintenance manual. The O&M manual shall be provided in electronic format.

- Provide training on-site. The training session shall be for a minimum of one full day. The training shall cover the installation, maintenance, operation and workstation functions.

- The installation of the PA/Paging system shall meet all requirements of the manufacturer's recommendations as well as the requirements of the bridge electrical system.

B.17 Spare Parts

Supply spare parts according to AASHTO requirements and contract plans. Provide shop drawings and/or product specifications to the engineer for approval prior to ordering spare parts.

Provide the following general spare parts, as applicable, for Mason Street Bridge (B-05-0134), Walnut Street Bridge (B-05-0269) and Main Street Bridge (B-05-0311):

- Six fuses of each kind and size installed.
- One complete relay timer, time delay relay, safety relay contactor, and starter for each unit or fractional unit of five or less of each kind and size installed.
- For the PLC system:
    - One each of every type PLC input card and PLC output card
    - In addition, a quantity of 4 discrete input cards and 4 relay contact output cards
    - One PLC chassis power supply module.
    - One control switch contact unit of each type installed.

Arrange the spare parts in uniform size cartons of substantial construction, with typed and clearly varnished labels to indicate their contents, and store them where directed by the engineer. Provide large spare parts with moisture-proof wrapping. Provide a directory of permanent type, describing the spare parts. In the directory state the name of each part, the manufacturer's number thereof, and the rating of the device for which the part is a spare. When applicable, mark the spare parts to correspond with their respective item numbers as indicated on the elementary wiring diagram.

C Construction

C.1 Painting

C.1.1 General

The requirements for painting structural steel also apply to painting electrical equipment, unless otherwise specified.

C.1.2 Shop Painting

Electrical equipment such as conduits, boxes, supports, and other devices which have a galvanized finish and equipment such as motors, brakes, control console, and control panel frames and enclosures which normally are given a factory finish need not be shop painted. Give all other electrical equipment one shop coat.

C.1.3 Field Painting

Electrical equipment, which is normally given a factory painted finish suitable to the engineer, need not be field painted. Give all other electrical equipment, such as conduits, boxes, device enclosures, supporting clips and brackets, and other devices, two field coats of paint as specified under the requirements for painting structural steel. Before applying the two field coats, clean galvanized surfaces free of all grease, oil, dirt, and foreign material and etch with copper sulfate solution, after which the solution shall be applied. In lieu of etching and a coat of shop paint, the contractor may use galvanizing primer as a first coat for galvanized surfaces. Apply a final field coat on electrical equipment in the operator house the color and type of paint to match the house interior.

C.2 PLC Programming and Sequence of Operation

It is the intent of these specifications that Main Street Bridge, to the extent possible, be programmed similarly to Mason and Walnut Street Bridges. Where possible, common sub routines and tag names shall be used. The following is a general sequence of operation based on the replacement system for Main Street and the general requirements of AASHTO. During the shop drawing submittal process the operating sequence shall be further refined with input from the engineer and the department. All software developed for this project, including any subroutines, shall become the property of WisDot to allow them to operate and maintain the bridge control systems.

Step 1: Turn oncoming traffic signals from green, through yellow, to red.

Step 2: Lower oncoming gates. If there is a circuit breaker fault, an overload, or a manual operation interlock fault, the operations shall stop and an alarm sent to the HMI. If a gate takes longer than 30 seconds to lower, the operation shall stop and an alarm shall be sent to the HMI.

Step 3: Lower the off-going gates. If the off-going gates are down but proper indication is not given, the gate lowered bypass shall allow operations to continue and an alarm shall be sent to the HMI. If there is a circuit breaker fault, an overload, or a manual operation interlock fault, the operations shall stop and an alarm sent to the HMI. If a gate takes longer than 30 seconds to lower, the operation shall stop and an alarm shall be sent to the HMI.

Step 4: The Hydraulic Power Units shall start when the gates are lowered. If there is a circuit breaker fault, an overload, or a manual operation interlock fault, the operations shall stop and an alarm sent to the HMI.

Step 5: Withdraw the span locks. If there is a circuit breaker fault, an overload, or a manual operation interlock fault, the operations shall stop and an alarm sent to the HMI. If a lock takes longer than 30 seconds to withdraw, the operation shall stop and an alarm shall be sent to the HMI. If the span lock withdrawn limit switches fail to register, the span lock withdrawn bypass switch shall allow the operation to continue and an alarm shall be sent to the HMI.

Step 6: Initiate span raise by momentarily turning the selector switch to raise. The hydraulic motors shall smoothly ramp to 5% speed at 100% torque, or original operating torque, whichever is less, with the brake still set. The system shall verify that the motor shafts are not turning. If the motor shafts turn, the operation shall stop and an alarm shall be sent to the HMI. If the shafts are not turning, the brakes shall release and the motors shall ramp to rated operating speed. If after 10 seconds, the brakes do not release, the operation shall cease and an alarm shall be sent to the HMI.

Step 7: Once the leaf reaches the nearly open position (to be field determined) the motors shall ramp down to and remain at 5% speed until the span reaches fully open. The motor torque shall be limited to 80% of normal operating torque, the brakes shall set and then the motors shall shut down. If the time to open the span exceeds 120 seconds, the operation shall stop and an alarm shall be sent to the HMI.

Step 8: The midspan navigation lights shall automatically change from red to green using the span position limit switches.

Step 9: Allow navigation traffic to clear.

Step 10: Initiate span lower by momentarily turning the selector switch to lower. The hydraulic motors shall smoothly ramp to 5% speed at 100% torque, or original operating torque, whichever is less, with the brake still set. The system shall verify that the motor shafts are not turning. If the motor shafts turn, the operation shall stop and an alarm shall be sent to the HMI. If the shafts are not turning, the brakes shall release and the motors shall ramp to rated operating speed. If after 10 seconds, the brakes do not release, the operation shall cease and an alarm shall be sent to the HMI.

Step 11: Once the leaf reaches the nearly closed position (to be field determined) the motor shall ramp down to and remain at 5% speed until the span seats. The motor output torque shall be limited to 80% of normal operating torque, the brakes shall set and then the drives shall shut down. If the time to close the span exceeds 120 seconds, the operation shall stop and an alarm shall be sent to the HMI. The HPUs shall be de-energized after a delay to be field determined.

Step 12: Once the span is seated, the brakes are set, the HPUs shut off and the span locks driven. If the span is seated but the limit switches fail to provide proper indication, the span seated bypass switch shall be used to allow the locks to drive and an alarm shall be sent to the HMI. If there is a circuit breaker fault, an overload, or a manual operation interlock fault, the operations shall stop and an alarm sent to the HMI. If a lock takes longer than 30 seconds to drive, the operation shall stop and an alarm shall be sent to the HMI. If the span lock driven limit switches fail to register, the span lock driven bypass switch shall allow the operation to continue and an alarm shall be sent to the HMI.

Step 13: Raise the off-going gates. If there is a circuit breaker fault, an overload, or a manual operation interlock fault, the operations shall stop and an alarm sent to the HMI. If a gate takes longer than 30 seconds to raise, the operation shall stop and an alarm shall be sent to the HMI.

Step 14: Raise the on-coming gates. If the on-coming gates are raised but the proper indications are not given, the gate raised bypass switch shall allow the on-coming gates to raise and alarm shall be sent to the HMI. If there is a circuit breaker fault, an overload, or a manual operation interlock fault, the operations shall stop and an alarm sent to the HMI. If a gate takes longer than 30 seconds to raise the operation shall stop and an alarm shall be sent to the HMI.

Step 15: Turn traffic signals to green.

Step 16: In general, any circuit breaker trip, any overload trip, any drive fault, any bypass switch, any overtime fault or any manual operation interlock fault shall send a fault to the HMI which shall display a message unique to that fault. The vendor shall submit a complete list of proposed fault messages for review and comment and additional messages shall be added as required. These messages shall be recorded in order with the time and date of the fault. Many operations can be bypassed; only one bypass switch can be enabled at any time, if more than one is enabled, the operation shall stop.

The preceding description of operation is based on local operation of Main Street Bridge. Remote operation of both Mason and Main Street Bridges shall be similar, with the only exception being that no bypasses shall be allowed. Both local and remote desks shall indicate current operating mode as “Local,” “Remote” or “Off.”

C.3 Field Testing

C.3.1 General

Furnish all labor, materials, plant, and equipment and perform all work necessary, such as adjustments or corrective measures, to properly test all systems included in the initial and final acceptance field testing for the Mason Street, Walnut Street, and Main Street Bridges.

All test results, parameters, data specified herein to be recorded shall be presented in legible, tabular format, listing associated parameters and conditions. For example, motor current shall reference speed (rpm), span position (degrees), raise or lower mode, normal or emergency drive control, drive control selector position number, etc. The results of the bridge electrical systems tests shall be presented in a matrix form on an Inspection Report Data Sheet. The proposed format of these sheets shall be submitted to the engineer for acceptance prior to the actual testing. Any parameter value, which falls beyond the recommended range, would require the readjustment or replacement of the defective device.

The table of the test results shall have references to the specific sections of the testing procedure. The precision of the results will depend on the accuracy of recording equipment, the observer and weather conditions. For each stage of testing of the bridge control

equipment, the name of the person who will perform the test, instruments used with calibration data if required, the exact date, time and weather conditions shall be recorded.

Some devices such as the transfer switch, lamps, console indicator lights, brake function indicator lights, console controlled lighting, horn, etc. can be easily tested without performing any bridge opening operation.

The bridge main parameters shall also be observed and visually compared to the control desk indicating meters. Any discrepancy between results should be recorded. A discrepancy between critical measurements like span position and speed shall be resolved prior to continuing the tests.

The testing shall be accomplished sequentially, following the bridge operation instructions for normal operation and emergency operation, as established in the new approved Operating and Maintenance (O&M) Manuals. The major bridge systems shall be monitored while each bridge operates. All monitored parameters shall be kept for future reference, and a printout copy shall be attached to the O&M Manuals for reference. Another printout copy shall be provided to the engineer.

The testing of the bridge electrical equipment would necessitate the use of the following recording and testing devices:

- A computerized 16-bit, data acquisition system providing simultaneous sampling every 0.1 second of span position, motor input power, current, voltage, and motor RPM. Data shall stream to disk at a rate of 10 Hz. The data shall be transferred to graphing software.
- Portable tachometer
- Portable ohmmeter
- Amp-probe
- Recording ammeter
- Recording voltmeter
- Infrared scanner
- Measuring tape
- Stop watch (Timer)
- All other necessary instrumentation and tools to monitor, adjust and/or replace items during the bridge testing procedure.

All meters shall be calibrated per NIST guidelines within 6 months of the testing.

Arrange for and provide all the necessary field tests and provide a testing procedure subject to the approval of the engineer, to demonstrate that the entire electrical system is in proper working order and according to the plans and specifications. The tests shall include, but not be limited to operational testing of traffic signals, warning gates, movable span, navigation lights and signals and manual transfer switch.

Should the tests show that any piece of equipment or cable or wiring connection, in the judgment of the engineer, is defective or functions improperly, such adjustments and/or replacements shall be made by the contractor as to make the installation satisfactory to the engineer and at no extra cost.

It may be found that minor deviations from the performance specification are required for optimum bridge operation. All hardware required for these modifications shall be included in the control system vendor scope of work at no additional cost to the department.

During the field testing period, arrange to have at the site representatives of the manufacturer of all major pieces of equipment or systems. The representatives shall be capable of supervising all adjustments to the equipment; of locating faults or defects and correcting them if possible; and of obtaining from the manufacturers, without delay, new parts or replacements for apparatus which, in the opinion of the engineer, does not perform satisfactorily.

C.3.2 Initial Field Testing

The initial field tests are intended to confirm that each major sub-component meets factory acceptance test criteria in its field installed condition and that each subsystem is operating properly as part of the completed system. Confirmation of correct operation of sub-components will be demonstrated through successful operation of the particular component. However, the contractor is still responsible for the factory acceptance tests as required per contract specifications. Examples of subsystems are the span drive systems, control and power wiring, limit switches, starters, span lock system, etc.

The initial field testing is intended for the contractor to make the necessary adjustments and/or modifications such that the normal and emergency control and power systems are operational, trouble free, operating with all interlocks properly functioning, and in compliance with the requirements of the contract plans and specifications.

C.3.3 Final Acceptance Field Testing

C.3.3.1 General

The bridge acceptance testing is intended to show and/or demonstrate that the normal and emergency control and power systems are operational, trouble free, operating with all interlocks properly functioning, and in compliance with the requirements of the contract plans and specifications.

The final acceptance tests are not intended to substitute each sub-component acceptance factory and field tests. Confirmation of correct operation of sub-components shall be demonstrated through successful operation of the total control system. However, the contractor is still responsible for the factory and initial field tests as required per contract specifications. For example, it is not the intent to manually operate and test each limit switch during Final Acceptance Field Testing. This will have been accomplished by the contractor during Initial Field Testing. The contractor shall be able to prove that the results of the sub-component tests are in conformance with the contract plans and specifications. The recommended values of various device parameters can be found in the appropriate

manufacturer's catalog cuts and instruction manuals. Correct operation of the sub-components, and control circuit wiring connections will be verified through the successful completion of the entire bridge control and power systems tests.

The Final Acceptance Field Testing procedure will evaluate performance and confirm correct and proper operation of all major subsystems and devices including the control desk meters and HMI, control switches and pushbuttons, traffic signals, warning gates, span locks, brakes, the span drives and motors, bypass switches, manual transfer switch, etc. The Final Acceptance Field Testing procedure shall demonstrate that the bridges can only be operated according to the "Sequence of Operation" as defined in the approved O&M Manuals. Visual inspections and physical measurements of some equipment are required for the purpose of recording valid parameter values. Bridge run printouts shall be provided for each test, and kept for the record together with all other recorded data.

The department must be in possession of the approved operating and maintenance (O&M) manuals at least thirty days before Final Acceptance Field Testing may begin. Start approval submissions of the O&M manuals as soon as possible, as several revisions may be required. There shall be thirty consecutive days of nominal bridge operation using the new permanent systems, with a minimum of five successful openings per day, before scheduling of the Final Acceptance Field Testing.

Results and observations shall be carefully recorded throughout the various tests.

Prior to performance of these tests, all temporary PLC forces, bypasses, jumpers, switches, etc., installed during any previous testing must be removed. The control circuits shall be in the state presented in the originally As-Built control wiring diagrams (restored to normal).

All tests and verifications shall be for equipment at both the near and far sides. In addition to all devices listed below, all associated devices should also be tested.

C.3.3.2 PLC System

The bridge primary control system is provided by the PLC system, span drives and power distribution system. Prior to any other test, visually verify the wiring connection integrity of the major components including:

- All limit switches
- Control cabinets contactors
- Traffic signals, warning gates, interlocked heating and ventilating devices, etc.
- Control desk indicating lights
- Control Desk HMI screens

C.3.3.3 Control Desk

The control desk devices (HMI, switches, pilot lights,) will be used throughout the tests, and all irregularities observed shall be noted during and after the tests from the notes and printouts. Special attention shall be given to the desk meters accuracy verification.

Provide one desk multi-functional power monitor verification as follows:

- For a determined bridge span opening, at an exact start recording [Time stamp] time from the PLC log information shall be recorded.
- The PLC recorded values shall be filed. The results shall be compared and the meter accuracy estimated.

C.3.3.4 Traffic Signals Control

Test that the traffic signals change state upon activation of the desk selector switch. The duration time of the amber light shall be of an acceptable time to the engineer. If necessary, the TSR timing relay shall be re-set to an acceptable time delay.

C.3.3.5 Traffic Gate Control

Perform individual and group lower/raise commands and sequencing checks. Verify that the gates can only be lowered/raised in the proper sequence and the gongs activate/de-activate at the appropriate times.

Verify the gate interlocks are functioning properly by showing the following:

1. Gate operation is prevented when any of the following occur:
    - Gate housing door opened.
    - Hand crank inserted.
    - Gate motor disconnect switch opened.
    - Gate motor overloaded.
2. Gates cannot be lowered unless the traffic signals are red.
3. Gates cannot be raised unless the span is fully seated.
4. Gates cannot be raised unless the span locks are fully driven.

Verify that the bypass is functioning properly such that when the “Bypass Gate Interlocks” key switch is enabled, interlocks 3 and 4 listed above are overridden.

C.3.3.6 Span Locks Control

Perform pull/drive commands and sequence checks. Verify that the locks can only be pulled/ and driven in the proper sequence. Pull and drive locks using the control desk marked-up corresponding switches, and verify the locks are in the correct positions.

Verify the span lock interlocks are functioning properly by showing the following:

1. Span lock operation is prevented when any of the following occur:
    - Auxiliary cover removed and/or manual hand crank inserted
    - Span lock motor disconnect switch opened
    - Span lock motor overloaded
2. Span locks cannot be pulled unless the gates are lowered.
3. Span locks cannot be driven unless the span is fully seated.

Verify that the bypass is functioning properly such that when the “Bypass Span Locks Interlocks” key switch is enabled, interlocks 2 and 3 listed above are overridden.

C.3.3.7 Span Normal Operation

Several bridge openings will be required to demonstrate that all the operational parameters are acceptable and all interlocks and bypasses are functioning properly. Subsequent runs will be required to simulate failures and to test interlocking and bypass functions. The normal sequence of operation as described in the ”Sequence of Operation” section of the approved O&M Manuals shall be followed up to the indicated operational step of the equipment to be tested. All tests shall be performed for all span motors on all leafs.

Follow the full “Sequence of Operation”. During the span “Raise” and “Lower” operation, the following parameters shall be monitored and manually recorded:

- Span position [degrees]
- Motor power [kilowatt]
- 3-phase current [amperes]
- 3-phase voltage [volts]
- Motor speed [rpm]
- Manually record maximum height during the “Raise” [degrees]
- Manually record “Raise” and “Lower” times [seconds]

These parameters shall also be recorded at the fully closed, nearly closed, nearly open and fully open position as indicated at the control desk by PLC HMI.

Verify that the span operated normally within the permissible position limits.
Verify that the recorded position, the control desk indicated position and the limit switches indicated position are equal or within the set design tolerances.

Verify the span operation interlocks are functioning properly by showing the following:

1. The span cannot be operated if more than one brake in any machinery room has been manually released.
2. The span cannot be operated if the span locks are not pulled.

Verify that when the “Bypass Span Control Interlocks” switch is enabled, interlocks 1 and 2 listed above are overridden.

C.3.3.8 Emergency Span Stops

Under normal opening procedures, push the “Emergency Stop” red mushroom head button. Verify that all contactors drop out and the span brakes set properly.

C.4 Bridge Operator

Provide persons to supervise the operation of the bridges and to train personnel for a period of thirty consecutive working days after the construction of the permanent control system has been completed, fine-tuned, field tested, and utilized for span operations. Instructors

include, but are not limited to, representatives from manufacturers of the major equipment and a control engineer.

Provide operators who are skilled persons competent to operate the bridge and who are completely familiar with the operating equipment of the bridge and its auxiliaries, such as bridge security, the communications system, and fire alarm system. The operators are required to be able to make any adjustments required to the electrical and mechanical equipment.

During the 30-day period specified above, the operator(s) is required to be in attendance at the bridge for the normal working period of 8 hours per day.

Included in the 30-day training and instruction period, provide on-site training of electricians, maintenance workers, and other personnel as indicated by the department on subjects such as troubleshooting, repair of electronic motor controls, drive circuit logic, maintenance and adjustment of all electrical equipment, software, PLC hardware, and other items required for full bridge operation and maintenance. Devote three 8-hour sessions to hardware and maintenance related topics. In addition, devote three 8-hour sessions to software requirements. Offer instruction pertaining to hardware and maintenance on two separate occasions to allow bridge personnel to coordinate the course with their normal activities. Devote one 8-hour session to training on the fire, security, and communications systems and equipment. Furnish all necessary instruction sheets, student training aids, books, paper, and booklets to supplement training. Submit to the department, a minimum of two weeks prior to training session, an outline of topics to be covered and training material for review. It is the contractor's responsibility to coordinate with the department the location where training sessions will be held. Supplying of visual aid equipment and other miscellaneous items required for training shall be the responsibility of the contractor.

Make the instruction booklet that was specified above, “Operation and Maintenance Manual, Volume 1, Operation of Electrical Equipment”, available for use during the training period.

Training of the designated bridge operational personnel shall commence three weeks prior to the official bridge opening date. This will allow training of personnel without interruption of normal traffic flow.

D Measurement

The department will measure Mason Street Bridge Remote Operations Work, B-05-134, acceptably completed, as a single complete unit of work. The department will measure Main Street Bridge Electrical and Remote Operations Work, B-05-0311, acceptably completed, as a single complete unit of work.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.01	Mason Street Bridge Remote Operations Work, B-05-0134	LS
SPV.0105.03	Main Street Bridge Electrical and Remote Operations Work, B-05-0311	LS

Payment is full compensation for furnishing all labor, materials, operation and maintenance manuals, training and equipment necessary for completely installed, ready for operation, movable bridge electrical systems; and for furnishing all incidental items necessary to complete the work as shown on the plans and included in the proposal and contract.

It is the intent and purpose of these special provisions to cover and include all apparatus and appliances to properly install, wire, connect, equip, test, adjust, and put into approved working order the respective portions of the electrical work herein specified. Furnish any incidental apparatus, appliance, material, or labor not herein specifically mentioned or included, but that the engineer deems necessary to comply with the requirements of the related documents and referenced standards or codes, just as if specifically mentioned in these specifications and without extra cost.

Submit to the engineer a detailed breakdown of the contractor's costs under these items within 30 days of award of the contract. This breakdown will be evaluated by the engineer and utilized as the basis for monthly progress payments for work satisfactorily completed. A minimum of ten-percent (10%) of the bid price for this item will be retained by the department until final acceptance of the bridge electrical system, the contractor and Control System vendor have completed all items on their punch-lists, and all aspects of bridge operation, operator and maintenance personnel testing, training, and control are complete. Five-percent (5%) of the bid price for this item will be retained until final approval of the operation and maintenance manuals is granted by the engineer.

16. Mason Street Bridge CCTV System, B-05-0134, SPV.0105.02; Main Street Bridge CCTV System, B-05-0311, SPV.0105.04.

A Description

This special provision describes providing and installation of CCTV equipment at Mason Street, Main Street and Walnut Street Bridges.

B Materials

B.1 Working Drawings and Samples

Provide shop drawings and operation and maintenance manuals as specified herein.

Prepare and submit for review working drawings according to the approved project schedule.

B.2 CCTV Supplier

The closed circuit television system (CCTV) shall be provided by a single approved vendor. Approval of vendor shall be at the sole discretion of the department.

B.3 CCTV Materials

Supply a CCTV systems that is able to complete the following items, at a minimum:

Cameras shall be IP high definition pan-tilt-zoom cameras that utilize CAT-5 cable for connection to video management PC. Thermal imaging cameras shall be provided as required and as shown on the Plans. Cameras shall be provided with lenses and accessories as required to obtain the views with suitable resolution as shown on the Plans. They shall be provided with liquid tight non-corroding enclosures with anti-condensation heaters and power supplies as required.

The video management system shall consist of recording software, storage and remote connection for administration of software.

Video management system shall handle a minimum of 10 cameras.

The video management system shall record video from IP cameras and/ or video decoders on the camera network.

The video management system shall support searching for recorded video and export video that can be used as evidence in a court of law.

The video management system shall support the recording of continuous video for a minimum of 30 days at 15 fps and at resolution of 1920 x 1080 utilizing a minimum of RAID 5 for backup security and “hot swap” capability of hard drives.

The video management system shall use “triggers” from PLC, relays or video decoders to change a camera view to a predetermined preset view for the camera including pan, tilt and zoom. A minimum of 4 presets is required for each camera. The cameras and or decoders shall also be able to “trigger” a minimum of 2 tours or predetermined movement patterns as an alarm state from the PLC. If analog cameras are being used, the presets shall be stored in the video decoders. The video decoders shall be able to handle “triggers” from the PLC to match the camera requirements.

The video management system shall have manual pan, tilt and zoom functionality control of each camera.

The client computer shall receive the live video from the cameras or decoders by use of a switch. A client computer shall be located at each console (if multiple console are located in the bridge tender house). The client computer shall then have the ability to display one camera view per camera to a monitor(s) with no ghosting or skipping of video. More than one client computer may be needed at the console because of the number of monitor(s) required. Monitor requirement will be bridge specific.

The client computer shall use a graphical user interface and keyboard/ mouse that runs on a current windows 64-bit machine for live and recorded video. The video management system

shall have manual pan, tilt and zoom functionality control of each camera. Provide two USB ports on the top or side of the control station so the keyboard and mouse can be plugged into workstation for use on top of control panel. The keyboard and mouse shall be stored under the console when not in use. Provide an Ethernet access point at each bridge house control station to connect an external maintenance laptop to the camera system. Provide a wireless access point to access the camera system without using a Cat-5 cable port.

The camera system shall have the following network architecture:

- Cameras/Video Decoders – 10.10.(**bridge id #).81-99
- Video Management System – 10.10.(**bridge id #).51
- Client Computer – 10.10.(**bridge id #).52-54
  **Bridge id # shall be between 10 and 30.

CCTV monitors shall be 27-inch high definition monitors with extra heavy duty ceiling mount brackets. Provide two per location minimum.

Entire camera system shall have a 1-year warranty from time of final acceptance. This includes time and material.

Provide all the software/apps as part of the client computer and video management system.

Provide a portable workstation for programming/viewing the CCTV system. The following shall be the minimum requirements for the computer system:

- Windows 10 pro
- Max of 3.75 lbs including keyboard
- Solid state drive (256 GB min)
- Screen size 13.5” or bigger
- 6th Gen Intel Core i5 or greater
- I5: intel HD graphics 520 or greater
- 8 GB RAM or greater
- Bluetooth and WI-FI technology
- Touch screen with hard tip pen use
- USB port
- Must include a keyboard (if not attached)

Provide all the manufacturers data sheets and manuals of all the products used as part of an operations and maintenance (O&M) manual. The O&M manual shall be provided in electronic format.

C Construction

Complete installation as required by the manufacturer and as shown in the plans.

Provide training on-site. The training session shall be for a minimum of one full day. The training shall cover the installation, recording, recording download, PTZ control, alarm setup, preset setup, integration process and workstation functions.

The installation of the CCTV system shall meet all requirements of the manufacturer's recommendations as well as the requirements of the bridge electrical system.

D Measurement

The department will measure Mason Street Bridge CCTV System, B-05-0134, acceptably completed, as a single complete unit of work. The department will measure Main Street CCTV System, B-05-0311, acceptably completed, as a single complete unit of work.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.02	Mason Street Bridge CCTV System, B-05-0134	LS
SPV.0105.04	Main Street Bridge CCTV System, B-05-0311	LS

Payment is full compensation for furnishing all labor, materials, operation and maintenance manuals, training and equipment necessary for completely installed, ready for operation, movable bridge electrical systems; and for furnishing all incidental items necessary to complete the work as shown on the plans and included in the proposal and contract.

It is the intent and purpose of these special provisions to cover and include all apparatus and appliances to properly install, wire, connect, equip, test, adjust, and put into approved working order the respective portions of the electrical work herein specified. Furnish any incidental apparatus, appliance, material, or labor not herein specifically mentioned or included, but that the engineer deems necessary to comply with the requirements of the related documents and referenced standards or codes, just as if specifically mentioned in these specifications and without extra cost.

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 ___2___ *(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 __1__ *(number)* TrANS Apprentice(s) be utilized on this contract.

3) The maximum duration of reimbursement is two years as a TrANS graduate plus time in apprentice status.

4) If a TrANS program is not available in the contractor's area and another training program is utilized, payment of On-the-Job Training hours may be approved by the Wisconsin Department of Transportation (WisDOT) if the training program meets the established acceptance criteria. Only On-the-Job Training Hours accumulated after WisDOT approval will be reimbursed as specified under Items ASP.1T0G and ASP.1T0A. For more information, contact the Disadvantaged Business Enterprise Office at the phone numbers listed above.

5) WisDOT reserves the right to deny payments under items ASP.1T0G and ASP.1T0A if the contractor either fails to provide training or there is evidence of a lack of good faith in meeting the requirements of this training special provision.

I. RATIONALE AND SPECIAL NOTE

The $5.00 per hour now being paid for TrANS placements is intended to cover the duration of two years to allow for reaching entry-level laborer status. An additional incentive, the $5.00 rate, would promote movement into the underutilized skilled trades' apprenticeships and applies until the individual completes their apprenticeship. These incentives benefit TrANS candidates by giving them a better opportunity to enter a skilled trade; benefits contractors who will be assisted in meeting their EEO profiles and goals; and benefits the public who will see the program reinforce larger public-private employment reform in Wisconsin. The pool of TrANS graduates was created for the purpose of addressing underutilization in the skilled trades, an objective that is further reinforced by a parallel retention pilot program, known as the Companywide Reporting. *Whether or not reimbursement is involved, the WisDOT reassures contractors who are in the Companywide Program that TrANS placements still contribute toward fulfilling the new hire goal of 50% women and minorities.* Based on data administered by United States Department of Labor (US DOL), the highway skilled trades remain underutilized for women statewide (less than 6.9%); and for minorities in all counties (% varies by county).

NOTE: *Unless using other advancement strategies, contractors are encouraged to use some or all of this monetary incentive to offset the cut in hourly wages an individual may incur when entering an apprenticeship if the full general laborer hourly rate has been previously paid. No special accounting measures are required.*

II. IMPLEMENTATION

The implementation of ASP 1 is intended to cover only the amount of time it takes for underutilization to be resolved across the trades. This will be measured annually at the county and/or state levels using data administered by WisDWD in relation to goals set by the USDOL-

OFCCP. With appropriate state and federal approvals, we may also do some measurement at the company level.

It is the contractor's responsibility to note on their Certified Payrolls if their employee is a TrANS graduate or a TrANS apprentice. The District EEO Coordinators utilize the information on the Certified Payrolls to track the hours accumulated by TrANS Graduates and TrANS apprentices on WisDOT contracts. Payment under this ASP 1 is made based on the hours recorded off of the Certified Payrolls. Tracking may eventually include improved linkages with the WisDWD apprentice database, information from company and committee level sources.

TrANS is nondiscriminatory by regulation, and is a tool for optional use by contractors to address the underutilization of women and minorities as laborers and apprentices in our industry's skilled trades.

IV. *TRANS TRAINING*

As part of the contractor's equal employment opportunity affirmative action program, training shall be provided to employees enrolled in apprenticeship and on-the-job training programs as follows:

The contractor shall provide on-the-job training aimed at developing full journey workers in the type of trade or job classifications involved. In the event the contractor subcontracts a portion of the contract work, the contractor shall determine how many, if any, of the trainees are to be trained by the subcontractor provided, however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this training special provision is made applicable to such subcontract.

Training and upgrading of minorities and women toward journey workers status is a primary objective of this training special provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority trainees and women trainees); to the extent such persons are available within a reasonable area of recruitment. The contractor will be given an opportunity and will be responsible for demonstrating the steps that they have taken in pursuance thereof, prior to determination as to whether the contractor is in compliance with this training special provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which they have successfully completed a training course leading to journey workers status or in which they have been employed as a journey worker. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used, the contractor's records should document the findings in each case.

V. APPRENTICESHIP TRAINING

The Federal Highway Administration's (FHWA) policy is to require full use of all available training and skill improvement opportunities to assure increased participation of minority groups, disadvantaged persons and women in all phases of the highway construction industry. The FHWA On-the-Job Training (OJT) Program requires the State transportation agencies (STAs) to establish apprenticeships and training programs targeted to move women, minorities, and disadvantaged individuals into journey-level positions to ensure that a competent workforce is available to meet highway construction hiring needs, and to address the historical under-representation of members of these groups in highway construction skilled crafts.

The OJT Supportive Services (OJT/SS) Program was established in Title 23 Code of Federal Regulations (CFR), Part 230) to supplement the OJT program and support STA training programs by providing services to highway construction contractors and assistance to highway construction apprentices and trainees. The primary objectives of OJT/SS are:

(1) To increase the overall effectiveness of the State highway agencies' approved training programs.
(2) To seek other ways to increase the training opportunities for women, minorities, and disadvantaged individuals.

The STAs are responsible for establishing procedures, subject to the availability of Surface Transportation and Bridge Funds under 23 U.S.C. §140(b*)* (Nondiscrimination), for the provision of supportive services with respect to training programs approved under 23 CFR, Part 230(a*)* (Equal Employment Opportunity on Federal and Federal-aid Construction Contracts – including Supportive Services).

The contractor and subcontractor shall maintain records to demonstrate compliance with these apprenticeship requirements. Reasonable exemptions and modifications to and from any or all of these requirements will be determined by the Wisconsin Department of Transportation-Civil Rights Office. A request for an exemption or modification, with justification, shall be made in writing, addressed to WisDOT Civil Rights Office, 4802 Sheboygan Avenue, P.O. Box 7965, Rm. 451, Madison, WI 53707.

ADDITIONAL SPECIAL PROVISION 3
DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

1. Description

General

a. The disadvantaged business enterprise (DBE) requirements of 49 CFR Part 26 apply to this contract. The department's DBE goal is shown on the cover of the bidding proposal. The contractor can meet the specified contract DBE goal by procuring services or materials from a DBE or by subcontracting work to a DBE. The department calculates the DBE participation as the dollar value of DBE participation included in the bid expressed as a percentage of the total contract bid amount.

b. Under the contract, the contractor agrees to provide the assistance to participating DBE's in the following areas:

   i. Produce accurate and complete quotes.
   ii. Understand highway plans applicable to their work.
   iii. Understand specifications and contract requirements applicable to their work.
   iv. Understand contracting reporting requirements.

c. The department encourages the contractor to assist and develop DBE firms to become fully knowledgeable contractors to successfully perform on its contracts.

d. For information on the disadvantaged business program, visit the department's Civil Rights and Compliance Section website at:

   http://wisconsindot.gov/Pages/doing-bus/civil-rights/dbe/default.aspx

2. Definitions

a. Interpret these terms, used throughout this additional special provision, as follows:

   i. **Bid Percentage:** The DBE percentage indicated in the bidding proposal at the time of bid.
   ii. **DBE:** A disadvantaged business enterprise (DBE) certified as a DBE by the department and included on the department's list of certified DBE's who are determined to be ready, willing and able.
   iii. **DBE goal:** The amount of DBE participation expected in the contract as shown on the cover of the Highway Work Proposal.
   iv. **Discretionary Goal:** A contractor assigned DBE goal, typically abbreviated as “Disc” on the cover of the Highway Work Proposal, which is enforced as committed.
   v. **Manufacturer:** A firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract.
   vi. **Supplier:** A firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment required under the contract are bought, kept in stock, and regularly sold or leased to the public.
   vii. **Voluntary Achievement:** The amount of DBE participation achieved and reported in the contract in excess of the assigned goal.

3. DBE Percentage Required at Bid Submission

Indicate the bid percentage (i.e. 0% through 100%) of DBE participation on the completed bidding proposal, including projects with discretionary goals. For electronic submittals, show the percentage in the miscellaneous data folder, Item 3, DBE Percent. For paper submittals, show the percentage on the sheet included after the schedule of items. By submission of the bid, the bidder contractually

commits to DBE participation at or above the bid percentage, or certifies that they have utilized comprehensive good faith efforts to solicit and utilize DBE firms to meet the DBE participation requirements of this contract proposal, and that the bid percentage is reflective of these good faith efforts. If the bidder does not indicate the bid percentage of DBE participation on the completed bidding proposal, the department will consider the bid irregular and may reject the bid.

4. Department's DBE Evaluation Process

a. Documentation Submittal

Within 10 business days after the notification of contract award, the contractor is to identify, by name, the DBE firms whose utilization is intended to satisfy this provision, the items of work of the DBE subcontract or supply agreement and the dollar value of those items of work by completing the Commitment to Subcontract to DBE Form [DT1506] and all necessary attachment A forms, as well as, Good Faith Waiver Form [DT1202] and supporting documentation as necessary. If the contractor fails to furnish the required forms within the specified time, the department may cancel the award. Delay in fulfilling this requirement is not a cause for extension of the contract time and shall not be used as a tool to delay execution.

i. Bidder Meets DBE Goal

If the bidder indicates that the contract DBE goal is met, after award and before execution, the department will evaluate the Commitment to Subcontract to DBE Form DT1506 and attachment A(s) to verify the actual DBE percentage achieved. If the DBE commitment is verified, the contract is eligible for execution with respect to the DBE commitment.

ii. Bidder Does Not Meet DBE Goal

(1) If the bidder indicates a bid percentage on the Commitment to Subcontract to DBE Form [DT1506] that does not meet the contract DBE goal, the bidder must submit a Good Faith Waiver Form [DT1202] and supporting documentation. After award and before execution, the department will evaluate the bidder's DBE commitment and consider the bidder's good faith waiver request.

(2) The department will review the bidder's good faith waiver request and notify the bidder of one of the following:

a. If the department grants a good faith waiver, the bid is eligible for contract execution with respect to DBE commitment.

b. If the department rejects the good faith waiver request, the department may declare the bid ineligible for execution. The department will provide a written explanation of why the good faith waiver request was rejected. The bidder may appeal the department's rejection as allowed under 7 a. & b.

5. Department's Criteria for Good Faith Effort

The Code of Federal Regulations {CFR}, 49 CFR Part 26-Appendix A, is the guiding regulation concerning good faith efforts. However, the federal regulations do not define “good faith” but states that bidder must actively and aggressively attempt to meet the goal. The federal regulations are general and do not include every factor or effort that can be considered. As a result, each state must establish its own processes and consider the factors established in its own process when making a determination of good faith.

a. The department will only grant a good faith waiver if the bidder has made the effort, given the relevant circumstances under the contract that a bidder actively and aggressively seeking to meet the goal would make. The department will evaluate the bidder's good faith effort to determine whether a good faith waiver will be granted. The bidder must demonstrate, on the DT1202 that they

have aggressively solicited DBE participation in an attempt to meet the contract DBE goal and attaining the stated DBE goal is not feasible.

b. The department, in conjunction with industry stakeholders, has developed the following guidance for contractor good faith effort. The guidance and the attached appendices provide a framework for the actions required by all parties in the processing and evaluation of bidder's total efforts to achieve the project specific DBE goal prior to the bid letting date.

c. Prime Contractors should:

   i. Document all efforts and decisions made toward achieving the DBE goal on the contract. The bidder should use the Civil Rights & Compliance System [CRCS] and related WisDOT-approved DBE outreach tools, including the Bid Express Small Business Network, to foster DBE participation on all applicable contracts.

   ii. Request quotes by identifying potential items to subcontract and solicit. Prime contractors are strongly encouraged to include in their initial contacts a single page including a detailed list of items for which they are accepting quotes, by project, within a letting. *See attached sample entitled "Sample Contractor Solicitation Letter" in Appendix A*. Prime contractors should also indicate a willingness to accept quotes in areas they are planning to perform themselves, ***as required by federal rules***. In some cases, it might be appropriate to use DBE's to do work in a prime contractor's area of specialization.

      (1) Solicit quotes through all reasonable and available means from certified DBE firms who match 'possible items to subcontract' and send copies to DBESS office, highlighting areas in which you are seeking quotes. Email is acceptable.

      (2) SBN is the preferred outreach tool. https://www.bidx.com/wi/main Other acceptable means include postal mail, email, fax, phone call.

         a. Primes must ask DBE firms for a response in their solicitations. See *Sample Contractors Solicitation Letter* in Appendix. This letter can be included as an attachment to the SBN sub-quote request.

         b. Solicit quotes at least 10 calendar days prior to the letting date {ideally two Fridays before the letting} to allow DBE firms sufficient time to respond. Prime contractors should contact DBE firms early, asking them if they need help in putting together a quote, or helping to arrange for equipment needs, or solve other problems.

      (3) Second solicitation should take place within 5 days
         a. An email solicitation is highly recommended for this second solicitation

      (4) Upon request, provide interested DBE firms with adequate information about plans, specifications and the requirements of the contract by letter, information session, email, phone call and/or referral.

      (5) When potential exists, advise interested DBE firms on how to obtain bonding, line of credit or insurance as may be requested.

      (6) Document DBE firm's interest in quoting by taking appropriate steps to follow up initial solicitation with:
         a. Email to all prospective DBE firms in relevant work areas
         b. Phone call log to DBE firms who express interest via written response or call.
         c. Fax/letter confirmation
         d. Copy of the DBE quotes
         e. Signed copy of Bid Express SBN Record of Subcontractor Outreach Effort.

d. Evaluate DBE quotes as documentation is critical if the prime does not utilize the DBE firm's quote for any reason.

   i. Evaluate DBE firm's capability to perform 'possible items to subcontract' using legitimate reasons, including but not limited to, ***a discussion with the DBE firm*** regarding its capabilities prior to the bid letting. If lack of capacity is your reason for not utilizing the DBE quote, you are required to contact the DBE directly regarding their ability to perform the work indicated in the UCP directory as their work area [NAICS code]; only the work area and/or NAICS code listed in the UCP directory will be counted for DBE credit. Documentation of the conversation is required.

   ii. In striving to meet a DBE conscious contract goal, prime contractors are expected to use DBE quotes that are responsive and reasonable. This includes DBE quotes that are not the low quote.

   iii. **Special Circumstance:** Evaluation of DBE quotes with tied bid items. "Tied quotes are the condition in which a subcontractor submits quotes including multiple areas of expertise across multiple work areas noting that the items and price are tied. Typically this type of quoting represents a cost saving to the prime but is not clearly stated as a discount; tied quotes are usually presented as 'all or none' quote to the prime." When non-DBE subcontractors submit tied bid items in their quotes to the prime, the DBE firms' quote may seem not competitive. In such a case, the following steps are taken in comparing the relevant quotes. These are qualitative examples.

      (1) Compare bid items common to both quotes, noting the reasonableness in the price comparison.

      (2) Review quotes from other firms for the bid items not quoted by the DBE firm to see if combining both can provide the same competitive advantage that the tied bid items offered.

e. After notification of contract award, submit **'Commitment to Subcontract'** form within the time period specified in the contract.

   i. Provide the following information along with department form DT1202:

      (1) The names, addresses, e-mail addresses, telephone numbers of DBE's contacted. The dates of both initial and follow-up contact. A printed copy of SBN solicitation is acceptable.

      (2) A description of information provided to the DBE's regarding the plans, specifications, and estimated quantities for portions of the work to be performed by that DBE.

      (3) Photocopies or electronic copies of all written solicitations to DBE's.

      (4) Documentation of each quote received from a DBE and, if rejected, the reason for that rejection.

      (5) Bidder attendance at any pre-solicitation or pre-bid meetings the department held to inform DBE's of participation opportunities available on the project.

f. The department's DBE Support Services Office is available by phone, email or in writing to request assistance in meeting the DBE goal:

DBE Support Services Office
6150 Fond du Lac Ave.
Milwaukee, WI 53218
Phone: 414-438-4583 / 608-266-6961
Fax: 414-438-5392
E-mail: DOTDBESupportServices@dot.wi.gov

6. Bidder's Appeal Process

a. A bidder can appeal the department's decision to deny the bidder's good faith waiver request. The bidder must provide written documentation refuting the specific reasons for rejection as stated in the department's rejection notice. The bidder may meet in person with the department if so requested. Failure to appeal within 7 calendar days after receiving the department's written notice of rejection of a good faith waiver request under constitutes a forfeiture of the bidder's right of appeal. If the bidder does not appeal, the department may declare the bid ineligible for execution.

b. The department will appoint a representative, who did not participate in the original determination, to assess the bidder's appeal. The department will issue a written decision within 7 calendar days after the bidder presents all written and oral testimony. In that written decision, the department will explain the basis for finding that the bidder did or did not meet the contract DBE goal or make an adequate good faith effort to meet the contract DBE goal. The department's decision is final. If the department finds that the bidder did not meet the contract DBE goal or did not make adequate efforts to meet the DBE goal, the department may declare the bid ineligible for execution.

7. Department's Criteria for DBE Participation

Department's DBE List

a. The department maintains a DBE list on the department's website

http://wisconsindot.gov/Documents/doing-bus/civil-rights/dbe/ucp-directory.xlsx

b. The DBE office is also available to assist at 414-438-4583 or 608-266-6961.

8. Counting DBE Participation

Assessing DBE Work

a. The department will only count the DBE usage towards the contract DBE goal if the DBE firm is certified as a DBE by one of the unified certification program agencies. If a firm becomes DBE certified before entering into a subcontract, the department may consider that DBE usage towards the contract goal. The department only counts the value of the work a DBE actually performs towards the DBE goal. The department assesses the DBE work as follows:

b. The department counts work performed by the DBE's own resources. The department includes the cost of materials and supplies the DBE obtains for the work. The department also includes the cost of equipment the DBE leases for the work. The department will not include the cost of materials, supplies, or equipment the DBE purchases or leases from the prime contractor or its affiliate, except the department will count non-project specific leases the DBE has in place before the work is advertised.

c. The department counts fees and commissions the DBE charges for providing a bona fide professional, technical, consultant, or managerial services. The department also counts fees and commissions the DBE charges for providing bonds or insurance. The department will only count costs the engineer deems reasonable based on experience or prevailing market rates.

d. If a DBE subcontracts work, the department counts the value of the subcontracted work only if the DBE's subcontractor is also a DBE.

e. The contractor shall maintain records and may be required to furnish periodic reports documenting its performance under this item.

f. It is the prime contractor's responsibility to determine the DBE's ability to perform the work with the use of the UCP directory.

9. Commercially Useful Function

a. The department counts expenditures of a DBE toward the DBE goal only if the DBE is performing a commercially useful function on that contract.
b. A DBE is performing a commercially useful function if the following conditions are met:
c. For contract work, the DBE is responsible for executing a distinct portion of the contract work and it is carrying out its responsibilities by actually performing, managing, and supervising that work.
d. For materials and supplies, the DBE is responsible for negotiating price, determining quality and quantity, ordering, and paying for those materials and supplies.

10. Trucking

All bidders are expected to adhere to the department's current trucking policy posted on the HCCI website

http://wisconsindot.gov/Documents/doing-bus/civil-rights/dbe/trucking-utilization-policy.pdf

11. Manufacturers and Suppliers

The department counts material and supplies a DBE provides under the contract. The department will give full credit toward the DBE goal if the DBE is a manufacturer of those materials or supplies. The department will give 60 percent credit toward the DBE goal if the DBE is merely a supplier of those materials or supplies. It is the bidder's responsibility to find out if the DBE is considered a supplier or a manufacturer before listing them on Commitment to Subcontract to DBE form DT1506.

12. DBE Prime

If the prime contractor is a DBE, the department will only count the work the contractor performs with its own forces, the work DBE subcontractors perform, and the work DBE suppliers or manufacturers perform.

13. Joint Venture

If a DBE performs as a participant in a joint venture, the department will only count that portion of the total dollar value of the contract equal to that portion of the work that the DBE performs with its own forces.

14. Mentor Protégé

a. If a DBE performs as a participant in a mentor protégé agreement, the department will credit the portion of the work performed by the DBE protégé firm
b. On every other project that the mentor protégé team identifies itself on.
c. For no more than one half of the total contracted DBE goal on any WisDOT project.

15. DBE Replacement

In the event a Prime Contractor needs to replace a DBE firm originally listed on the approved DBE Commitment Form DT1506, the Prime Contractor must comply with the department's DBE Replacement Policy located on the DBE page on the following web site:

http://wisconsindot.gov/Documents/doing-bus/civil-rights/dbe/policy-statement.pdf

16. Changes to the approved DBE Commitment Form DT1506

If there are any changes to the approved Commitment to Subcontract to DBE Form DT1506, the prime contractor must submit a revised DBE Commitment Form DT1506 and relevant attachment A(s) to the DBE Programs Office within 5 business days.

17. Contract Modifications

When additional opportunity is available by contract modifications, the Prime Contractor shall utilize DBE Subcontractors that were committed to equal work items, in the original contract.

18. Payment

Costs for conforming to this Additional Special Provision (ASP) and any associated DBE requirements are incidental to the contract.

APPENDIX A
Sample Contractor Solicitation Letter Page 1
This sample is provided as a guide not a requirement

GFW SAMPLE MEMORANDUM

TO: DBE FIRMS

FROM: POTENTIAL PRIME CONTRACTOR OR MAJOR SUBCONTRACTOR

SUBJECT: **REQUEST FOR DBE QUOTES**

LET DATE & TIME

DATE: MONTH DAY YEAR

CC: DBE OFFICE ENGINEER

Our company is considering bidding on the projects indicated on the next page, as a prime and/or a subcontractor for the Wisconsin Department of Transportation Month- date -year Letting. Page 2 lists the projects and work items that we may subcontract for this letting. We are interested in obtaining subcontractor quotes for these projects and work categories. Also note that we are willing to accept quotes in areas we may be planning to perform ourselves as required by federal rules.

Please review page 2, respond whether you plan to quote, highlight the projects and work items you are interested in performing and return it via fax or email within 3 days. Plans, specifications and addenda are available through WisDOT at the DBE Support Services office or at the Highway Construction Contract Information (HCCI) site at http://roadwaystandards.dot.wi.gov/hcci/

Your quote should include all of the costs required to complete the items you propose to perform including labor, equipment, material, and related bonding or insurance. The quote should note items that you are DBE certified to perform, tied items, and any special terms. Page 2, with the indicated projects and items you plan to quote, should be used as a cover sheet for your quote.

Please make every effort to have your quotes into our office by time deadline the prior to the letting date. ***Make sure the correct letting date, project ID and proposal number, unit price and extension are included in your quote.*** We prefer quotes be sent via SBN but prime's alternative's are acceptable. Our office hours are include hours and days. Please call our office as soon as possible prior to the letting if you need information/clarification to prepare your quote at contact number.

If you wish to discuss or evaluate your quote in more detail, contact us after the contract is awarded. Status of the contract can be checked at WisDOT's HCCI site at http://roadwaystandards.dot.wi.gov/hcci/

All questions should be directed to:

Project Manager, John Doe,
Phone: (000) 123-4567
Email: Joe@joetheplumber.com
Fax: (000) 123- 4657

Sample Contractor Solicitation Letter Page 2

This sample is provided as a guide not a requirement

REQUEST FOR QUOTATION

Prime's Name: _____

Letting Date: _____

Project ID: _____

Please check all that apply

- ☐ Yes, we will be quoting on the projects and items listed below
- ☐ No, we are not interested in quoting on the letting or its items referenced below
- ☐ Please take our name off your monthly DBE contact list
- ☐ We have questions about quoting this letting. Please have some one contact me at this number

Prime Contractor 's Contact Person		DBE Contractor Contact Person	
Phone:		Phone	
Fax:		Fax	
Email:		Email	

Please circle the jobs and items you will be quoting below

Proposal No.	1	2	3	4	5	6	7
County							

WORK DESCRIPTION:

Clear and Grub	X		X	X		X	X
Dump Truck Hauling	X		X	X		X	X
Curb & Gutter/Sidewalk, Etc.	X		X	X		X	X
Erosion Control Items	X		X	X		X	X
Signs and Posts/Markers	X		X	X		X	X
Traffic Control		X	X	X		X	X
Electrical Work/Traffic Signals		X	X	X		X	
Pavement Marking		X	X	X	X	X	X
Sawing Pavement		X	X	X	X	X	X
QMP, Base	X	X		X	X	X	X
Pipe Underdrain	X			X			
Beam Guard				X	X	X	X
Concrete Staining							X
Trees/Shrubs	X						X

Again please make every effort to have your quotes into our office by time deadline prior to the letting date.

We prefer quotes be sent via SBN but prime's preferred alternative's are acceptable.

If there are further questions please direct them to the prime contractor's contact person at phone number.

APPENDIX B
BEST PRACTICES FOR PRIME CONTRACTOR & DBE SUBCONTRACTOR GOOD FAITH EFFORT

This list is not a set of requirements; it is a list of potential strategies

Primes

- Prime contractor open houses inviting DBE firms to see the bid "war room" or providing technical assistance
- Participate in speed networking and mosaic exercises as arranged by DBE office
- Host information sessions not directly associated with a bid letting;
- Participate in a formal mentor protégé or joint venture with a DBE firm
- Participate in WisDOT advisory committees i.e. TRANSAC, or Mega Project committee meetings
- Facilitate a small group DBE 'training session' Clarifying how your firm prepares for bid letting, evaluates subcontractors, preferred qualifications and communication methods
- Encourage subcontractors to solicit and highlight DBE participation in their quotes to you
- Quality of communication, not quantity creates the best results. Contractors should do as thorough a job as possible in communicating with DBE firms before the bid and provide any assistance requested to assure best possible bid.

DBE

- DBE firms should contact primes as soon as possible with questions regarding their quotes or bid; seven days prior is optimal.
- Continually check for contract addendums on the HCCI website through the Thursday prior to letting to stay abreast of changes.
- Review the status of contracts on the HCCI website reviewing the 'apparent low bidder' list, and bid tabs at a minimum.
- Prepare a portfolio or list of related projects and prime and supplier references; be sure to note transportation-related projects of similar size and scope, firm expertise and staffing.
- Participate in DBE office assessment programs
- Participate on advisory and mega-project committees
- Sign up to receive the DBE Contracting Update
- Consider membership in relevant industry or contractor organizations
- Active participation is a must. Quote as many projects as you can reasonably work on; quoting the primes and bidding as a prime with the department are the only ways to get work.

APPENDIX C
Types of Efforts considered in determining GFE
This list represents concepts being assessed; analysis requires additional steps

1. Whether the contractor attended any pre-solicitation or pre-bid meetings that were scheduled by WisDOT to inform DBEs of contracting and subcontracting opportunities;
2. Whether the contractor provided written notice to a reasonable number of specific DBEs that their interest in the contract was being solicited, in sufficient time to allow the DBEs to participate effectively;
3. Whether the contractor followed up initial solicitations of interest by contacting DBEs to determine if the DBEs were interested; returned the phone calls of interested DBE firms.
4. Whether the contractor selected portions of the work to be performed by DBEs in order to increase the likelihood of meeting the DBE goal;
5. Whether the contractor provided interested DBEs with adequate information about the plans, specifications and requirements of the contract;
6. Whether the contractor negotiated in good faith with interested DBEs, not rejected DBEs as unqualified without sound reasons based on a thorough investigation of their capabilities;
7. Whether the contractor made efforts to assist interested DBEs in being more competitive.
8. Whether the contractor effectively used the services of available minority community organizations: minority contractors groups, local, state, and Federal minority business assistance offices, and other organizations that provide assistance to small businesses and DBE firms.
9. Whether Prime used CRCS to identify DBE who specialize in relevant work areas.
10. Whether the contractor used available resources including contacting the DBE office, using WisDOT's website
11. Whether the contractor returned calls of firms expressing interest in a timely manner.

APPENDIX D
Good Faith Effort Evaluation Guidance
Excerpt from Appendix A of 49 CFR Part 26

APPENDIX A TO PART 26 -- GUIDANCE CONCERNING GOOD FAITH EFFORTS

I. When, as a recipient, you establish a contract goal on a DOT assisted contract, a bidder must, in order to be responsible and/or responsive, make good faith efforts to meet the goal. The bidder can meet this requirement in either of two ways. First, the bidder can meet the goal, documenting commitments for participation by DBE firms sufficient for this purpose. Second, even if it doesn't meet the goal, the bidder can document adequate good faith efforts. This means that the bidder must show that it took all necessary and reasonable steps to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not fully successful.

II. In any situation in which you have established a contract goal, part 26 requires you to use the good faith efforts mechanism of this part. As a recipient, it is up to you to make a fair and reasonable judgment whether a bidder that did not meet the goal made adequate good faith efforts. It is important for you to consider the quality, quantity, and intensity of the different kinds of efforts that the bidder has made. The efforts employed by the bidder should be those that one could reasonably expect a bidder to take if the bidder were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE contract goal. Mere pro forma efforts are not good faith efforts to meet the DBE contract requirements. We emphasize, however, that your determination concerning the sufficiency of the firm's good faith efforts is a judgment call: meeting quantitative formulas is not required.

III. The Department also strongly cautions you against requiring that a bidder meet a contract goal (i.e., obtain a specified amount of DBE participation) in order to be awarded a contract, even though the bidder makes an adequate good faith efforts showing. This rule specifically prohibits you from ignoring bona fide good faith efforts.

IV. The following is a list of types of actions which you should consider as part of the bidder's good faith efforts to obtain DBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

A. Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

B. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.

C. Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

D. (1) Negotiating in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.

(2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

E. Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non solicitation of bids in the contractor's efforts to meet the project goal.

F. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.

G. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

H. Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.

V. In determining whether a bidder has made good faith efforts, you may take into account the performance of other bidders in meeting the contract. For example, when the apparent successful bidder fails to meet the contract goal, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts, the apparent successful bidder could have met the goal. If the apparent successful bidder fails to meet the goal, but meets or exceeds the average DBE participation obtained by other bidders, you may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made good faith efforts.

Appendix E
Small Business Network [SBN] Overview

The Small Business Network is a part of the Bid Express® service that was created to ensure that prime bidders have a centralized online location to find subs - including small and disadvantaged business enterprises (DBEs). It is available for prime bidders to use as part of their Basic Service subscription. Within the Small Business Network, **Prime Contractors** can:

1. Easily select proposals, work types and items:
    a. After adding applicable work types, select items that you wish to quote. Enter the sub-quote quantities and add comments, if desired. Adding or removing items and work types can be done quickly. If needed, you can save the sub-quote for completion at a later time.
2. Create sub-quotes for the subcontracting community:
    a. Create sub-quotes with ease using the intuitive sub-quote creator. In seven short steps, you can rapidly create a custom sub-quote directed to all subcontractors that bid on the applicable work types. Steps include: provide contact information and sub-quote expiration date, select letting and proposal, add work types and items, specify terms and conditions, upload attachments, and select vendors.
    b. Create a sub-quote to send to subcontractors or suppliers that lists the items in a proposal that you want quoted
    c. Create an unlimited number of sub-quotes for items you want quoted, and optionally mark them as a DBE-preferred request
    d. Add attachments to sub-quotes
3. View sub-quote requests & responses:
    a. After logging into the Bid Express service, you can quickly review all of your sub-quote requests and all unsolicited sub-quote requests from subcontractors. To simplify the Small Business Network home screen, sub-quote requests can be hidden with one click if they are not applicable.
    b. View or receive unsolicited sub-quotes that subcontractors have posted, complete with terms, conditions and pricing
4. View Record of Subcontractor Outreach Effort:
    a. For each sub-quote produced, a *Record of Subcontractor Outreach Effort* is generated that shows the response statistics for a particular sub-quote. If accepted by the letting agency, this report may serve as proof of a "Good Faith" effort in reaching out to the DBE community.
    b. Easily locate pre-qualified and certified small and disadvantaged businesses
    c. Advertise to small and disadvantaged businesses more efficiently and cost effectively
    d. Document your interactions with subs/DBEs by producing an Outreach Report (may be accepted as proof of DBE outreach at the discretion of each agency)

The Small Business Network is a part of the Bid Express® service that was created to ensure that small businesses have a centralized area to access information about upcoming projects. It can help small businesses learn more about opportunities, compete more effectively, network with other contractors and subcontractors, and win more jobs.

1. View and reply to sub-quote requests from primes:
    a. After logging into the Bid Express service, you can quickly review all incoming sub-quote requests and all unsolicited sub-quotes created by your company. Receive notifications by selected work type. To simplify on the Small Business Network home screen, sub-quote requests can be filtered by work types relevant to your interests, or hidden with one click if they are not applicable.
2. Select items when responding to sub-quote requests from primes:
    a. You have the freedom to choose and price any number of items when responding to a sub-quote request. Quantities can be modified, and per-item comments are also available.
    b. View requests for sub-quotes for work that primes have posted for projects they are bidding, add your pricing, terms, and conditions, and submit completed sub-quotes to the requesting primes
    c. Add attachments to a sub-quote
3. Create and send unsolicited sub-quotes to specific contractors:
    a. Create unsolicited sub-quotes with ease using the intuitive sub-quote creator. In eight short steps, you can rapidly create a custom sub-quote directed at any number of specific vendors of your choosing. Steps include: provide contact information and sub-quote expiration date, select letting and proposal, add work types and items, specify terms and conditions, upload attachments, and select vendors.
4. Easily select and price items for unsolicited sub-quotes:
    a. After adding applicable work types, select items that you wish to quote. The extended price calculates automatically, cutting out costly calculation errors. Comments can be provided on an per-item basis as well.
    b. Create an unsolicited sub-quote that lists the items from a proposal that you want to quote, include pricing, terms and conditions, and send it to selected prime/plan holder
    c. Add attachments to a sub-quote
    d. Add unsolicited work items to sub-quotes that you are responding to
5. Easy Access to Valuable Information
    a. Receive a confirmation that your sub-quote was opened by a prime
    b. View Bid Tab Analysis data from past bids, including the high, average and low prices of items.
    c. View important notices and publications from DOT targeted to small and disadvantaged businesses
6. Accessing Small Business Network for WisDOT contracting opportunities
    a. If you are a contractor not yet subscribing to the Bid Express service, go to **www.bidx.com** and select "Order Bid Express." The Small Business Network is a part of the Bid Express Basic Service.
    b. DBE firms can request a Bid Express Small Business Network Account at no cost by calling 414-438-4588

ADDITIONAL SPECIAL PROVISION 4

Payment to First-Tier Subcontractors

Within 10 calendar days of receiving a progress payment for work completed by a subcontractor, pay the subcontractor for that work. The prime contractor may withhold payment to a subcontractor if, within 10 calendar days of receipt of that progress payment, the prime contractor provides written notification to the subcontractor and the department documenting "just cause" for withholding payment.

The prime contractor may also withhold routine retainage from payments due subcontractors.

Payment to Lower-Tier Subcontractors

Ensure that subcontracting agreements at all tiers provide prompt payment rights to lower-tier subcontractors that parallel those granted first-tier subcontractors in this provision.

Release of Routine Retainage

After granting substantial completion the department may reduce the routine retainage withheld from the prime contractor to 75 percent of the original total amount retained.

When the Department sends the semi-final estimate the department may reduce the routine retainage withheld from the prime contractor to 10 percent of the original total amount retained.

Within 30 calendar days of receiving the semi-final estimate from the department, submit written certification that subcontractors at all tiers are paid in full for acceptably completed work and that no routine retainage is being withheld. The department will pay the prime contractor in full and reduce the routine retainage withheld from the prime contractor to zero when the department approves the final estimate.

This special provision does not limit the right of the department, prime contractor, or subcontractors at any tier to withhold payment for work not acceptably completed or work subject to an unresolved contract dispute.

ADDITIONAL SPECIAL PROVISION 6
ASP 6 - Modifications to the standard specifications

Make the following revisions to the standard specifications:

550.5.2 Piling

Add the following as paragraph three effective with the December 2015 letting:

(3) The department will not entertain a change order request for a differing site condition under 104.2.2.2 or for a quantity change under 104.2.2.4.3 for the Piling bid items. Instead the department will adjust pay under the Piling Quantity Variation administrative item if the total driven length of each size is less than 85 percent of, or more than 115 percent of the contract quantity as follows:

Percent of Contract Length Driven	Pay Adjustment
< 85	(85% contract length - driven length) x 20% unit price
> 115	(driven length - 115% contract length) x 5% unit price

643.2.1 General

Replace paragraph two with the following effective with the December 2015 letting:

(2) Use reflective sheeting from the department's approved products list on barricades, drums, and flexible tubular marker posts.

Errata

Make the following corrections to the standard specifications:

641.2.9 Overhead Sign Supports

Correct errata adding back accidentally deleted paragraphs one through three.

(1) Provide commercially fabricated overhead sign supports conforming to AASHTO design and fabrication standards for structural supports for highway signs, luminaires, and traffic signals. Use a design life of 50 years with a wind importance factor of 1.00. Design to withstand a 3 second gust wind speed of 90 mph. Do not use the methods of appendix C of those AASHTO standards.

(2) Design structures, listed as applicable structure types in the AASHTO standards, to the fatigue category criteria as follows:

1. Structures carrying variable message signs:
   - Category I criteria for structures over all roadway types.
2. Structures carrying type II or III signs:
   - Category I criteria for structures used over highways and free flow ramps.
   - Category II criteria for structures with arms greater than 30 feet used over local roads and city streets.
   - Category III criteria for structures with arms 30 feet or less used over local roads and city streets.

(3) Use the posted speed limit of the roadway beneath the structure for truck-induced gusts.

(4) Submit shop drawings identified by structure number, design computations, and material specifications, to the engineer before erecting sign supports. Provide tightening procedures for mast arm or luminaire arm to pole shaft connections on the shop drawings. Have a professional engineer registered in the state of Wisconsin sign, seal, and date the shop drawings and certify that the design conforms to AASHTO standards and the contract.

(5) Provide steel pole shafts and mast arms zinc coated according to ASTM A123. Provide tapered pole and arm shafts with a minimum taper of 0.14 inch per foot for single-member vertical and single-member horizontal structure components. Provide bolts and other hardware conforming to 641.2.2.

ADDITIONAL SPECIAL PROVISION 7

A. Reporting 1st Tier and DBE Payments During Construction

1. Comply with reporting requirements specified in the department's Civil Rights Compliance, Contractor's User Manual, Sublets and Payments.
2. Report payments to all DBE firms within 10 calendar days of receipt of a progress payment by the department or a contractor for work performed, materials furnished, or materials stockpiled by a DBE firm. Report the payment as specified in A(1) for all work satisfactorily performed and for all materials furnished or stockpiled.
3. Report payments to all first tier subcontractor relationships within 10 calendar days of receipt of a progress payment by the department for work performed. Report the payment as specified in A(1) for all work satisfactorily performed.
4. All tiers shall report payments as necessary to comply with the DBE payment requirement as specified in A(2).
5. Require all first tier relationships, DBE firms and all other tier relationships necessary to comply with the DBE payment requirement in receipt of a progress payment by contractor to acknowledge receipt of payment as specified in A(1), (2), (3) and (4).
6. All agreements made by a contractor shall include the provisions in A(1), (2), (3), (4) and (5), and shall be binding on all first tier subcontractor relationships and all contractors and subcontractors utilizing DBE firms on the project.

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

ADDITIONAL SPECIAL PROVISION 9
Electronic Certified Payroll Submittal

(1) Use the department's Civil Rights Compliance System (CRCS) to submit certified payrolls electronically. Details are available online through the department's highway construction contractor information (HCCI) site on the Labor, Wages, and EEO Information page at:

http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/default.aspx

(2) Ensure that all tiers of subcontractors, as well as all trucking firms, submit their weekly certified payrolls electronically through CRCS. These payrolls are due within seven calendar days following the close of the payroll period. Every firm providing physical labor towards completing the project is a subcontractor under this special provision.

(3) Upon receipt of contract execution, promptly make all affected firms aware of the requirements under this special provision and arrange for them to receive CRCS training as they are about to begin payrolls. The department will provide training either in a classroom setting at one of our regional offices or by telephone. Contact Tess Mulrooney at 608-267-4489 to schedule the training.

(4) The department will reject all paper submittals of forms DT-1816 and DT-1929 for information required under this special provision. All costs for conforming to this special provision are incidental to the contract.

(5) Firms wishing to export payroll data from their computer system into CRCS should have their payroll coordinator send several sample electronic files to Tess two months before a payroll needs to be submitted. Not every contractor's payroll system is capable of producing export files. For details, see pages 17-22 of the CRCS System Background Information manual available online on the Labor, Wages, and EEO Information page at:

http://wisconsindot.gov/Documents/doing-bus/civil-rights/labornwage/crcs-payroll-manual.pdf

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;
(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

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

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

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

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

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

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

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

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

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

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

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

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

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

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

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

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

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

SEPTEMBER 2002

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

1. The Offeror's or Bidder's attention is called to the "Employment Practices" and "Equal Opportunity Clause" set forth in the Required Contract Provisions, FHWA 1273.

2. The goals and timetables for minority and female participation expressed in percentage terms for the contractor's aggregate work force in each trade, on all construction work in the covered area, are as follows:

Goals for Minority Participation for Each Trade:

County	%	County	%	County	%
Adams	1.7	Iowa	1.7	Polk	2.2
Ashland	1.2	Iron	1.2	Portage	0.6
Barron	0.6	Jackson	0.6	Price	0.6
Bayfield	1.2	Jefferson	7.0	Racine	8.4
Brown	1.3	Juneau	0.6	Richland	1.7
Buffalo	0.6	Kenosha	3.0	Rock	3.1
Burnett	2.2	Kewaunee	1.0	Rusk	0.6
Calumet	0.9	La Crosse	0.9	St. Croix	2.9
Chippewa	0.5	Lafayette	0.5	Sauk	1.7
Clark	0.6	Langlade	0.6	Sawyer	0.6
Columbia	1.7	Lincoln	0.6	Shawano	1.0
Crawford	0.5	Manitowoc	1.0	Sheboygan	7.0
Dane	2.2	Marathon	0.6	Taylor	0.6
Dodge	7.0	Marinette	1.0	Trempealeau	0.6
Door	1.0	Marquette	1.7	Vernon	0.6
Douglas	1.0	Menominee	1.0	Vilas	0.6
Dunn	0.6	Milwaukee	8.0	Walworth	7.0
Eau Claire	0.5	Monroe	0.6	Washburn	0.6
Florence	1.0	Oconto	1.0	Washington	8.0
Fond du Lac	1.0	Oneida	0.6	Waukesha	8.0
Forest	1.0	Outagamie	0.9	Waupaca	1.0
Grant	0.5	Ozaukee	8.0	Waushara	1.0
Green	1.7	Pepin	0.6	Winnebago	0.9
Green Lake	1.0	Pierce	2.2	Wood	0.6

Goals for female participation for each trade: 6.9%

These goals are applicable to all the contractor's construction work, (whether or not it is federal or federally assisted), performed in the covered area. If the contractor performs construction work in the geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The contractor's compliance with the Executive Order and the Regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order and the Regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of $10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor, employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

   As referred to in this section, the Director means:

   Director
   Office of Federal Contract Compliance Programs
   Ruess Federal Plaza
   310 W. Wisconsin Ave., Suite 1115
   Milwaukee, WI 53202

   The "Employer Identification Number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

4. As used in this notice, and in the contract resulting from solicitation, the "covered area" is the county(ies) in Wisconsin to which this proposal applies.

APRIL 2013

ADDITIONAL FEDERAL-AID PROVISIONS

NOTICE TO ALL BIDDERS

To report bid rigging activities call:

1-800-424-9071

The U.S. Department of Transportation (DOT) operates the above toll-free "hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m., Eastern Time. Anyone with knowledge of possible bid rigging, bidding collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

Effective August 2015 letting

BUY AMERICA PROVISION

All steel and iron materials permanently incorporated in this project shall be domestic products and all manufacturing and coating processes for these materials from smelting forward in the manufacturing process must have occurred within the United States. Coating includes epoxy coating, galvanizing, painting and any other coating that protects or enhances the value of a material subject to the requirements of Buy America. The exemption of this requirement is the minimal use of foreign materials if the total cost of such material permanently incorporated in the product does not exceed one-tenth of one percent (1/10 of 1%) of the total contract cost or $2,500.00, whichever is greater. For purposes of this paragraph, the cost is that shown to be the value of the subject products as they are delivered to the project. The contractor shall take actions and provide documentation conforming to CMM 2-28.5 to ensure compliance with this “Buy America” provision.

http://wisconsindot.gov/rdwy/cmm/cm-02-28.pdf

Upon completion of the project certify to the engineer, in writing using department form WS4567, that all steel, iron, and coating processes for steel or iron incorporated into the contract work conform to these "Buy America" provisions. Attach a list of exemptions and their associated costs to the certification form. Department form WS4567 is available at:

http://wisconsindot.gov/rdwy/worksheets/ws4567.doc

Effective February 2016 letting

Cargo Preference Act Requirement

All Federal-aid projects shall comply with 46 CFR 381.7 (a) – (b) as follows:

(a) *Agreement Clauses.* "Use of United States-flag vessels:"

(1) Pursuant to Pub. L. 664 (43 U.S.C. 1241(b)) at least 50 percent of any equipment, materials or commodities procured, contracted for or otherwise obtained with funds granted, guaranteed, loaned, or advanced by the U.S. Government under this agreement, and which may be transported by ocean vessel, shall be transported on privately owned United States-flag commercial vessels, if available.

(2) Within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (a)(1) of this section shall be furnished to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590."

(b) *Contractor and Subcontractor Clauses.* "Use of United States-flag vessels: The contractor agrees—"

(1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

(2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b) (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

(3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.

Effective with 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
BROWN COUNTY

Compiled by the State of Wisconsin - Department of Workforce Development
for the Department of Transportation
Pursuant to s. 103.50, Stats.
Issued on May 1, 2015

CLASSIFICATION: Contractors are required to call the Department of Workforce Development if there are any questions reqarding the proper trade or classification to be used for any worker on a public works project.

OVERTIME: Time and one-half must be paid for all hours worked over 10 hours per day and 40 hours per calendar week and for all hours worked on Saturday, Sunday and the following six (6) holidays: January 1; the last Monday in May; July 4; the 1st Monday in September; the 4th Thursday in November; December 25; the day before if January 1, July 4 or December 25 falls on a Saturday; the day following if January 1, July 4 or December 25 falls on a Sunday.

FUTURE INCREASE: If indicated for a specific trade or occupation, the full amount of such increase MUST be added to the "TOTAL" indicated for such trade or occupation on the date(s) such increase(s) becomes effective.

PREMIUM PAY: If indicated for a specific trade or occupation, the full amount of such pay MUST be added to the "HOURLY BASIC RATE OF PAY" indicated for such trade or occupation, whenever such pay is applicable.

SUBJOURNEY: Wage rates may be available for some of the classifications indicated below. Any employer that desires to use any subjourney classification on a project MUST request the applicable wage rate from the Department of Workforce Development PRIOR to the date such classification is used on such project. Form ERD-10880 is available for this purpose and can be obtained by writing to the Department of Workforce Development, Equal Rights Division, P.O. Box 8928, Madison, WI 53708.

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
	$	$	$
Bricklayer, Blocklayer or Stonemason	30.85	17.61	48.46
Carpenter	32.72	16.00	48.72
Future Increase(s): Add $1.42/hr on 6/1/2015; Add $1.42/hr on 6/1/2016.			
Premium Pay: DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.			
Cement Finisher	33.86	17.96	51.82
Future Increase(s): Add $1.87 on 6/1/15;Add $1.75 on 6/1/16.			
Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.40/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.			
Electrician	29.20	17.42	46.62
Future Increase(s): Add $.75/hr on 6/1/2015.			
Premium Pay: DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.			
Fence Erector	23.73	19.09	42.82
Ironworker	29.27	23.97	53.24
Future Increase(s): Add $1.15/hr on 6/1/2015.			
Premium Pay: DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.			
Line Constructor (Electrical)	39.50	17.72	57.22
Painter	23.62	9.07	32.69
Pavement Marking Operator	24.10	26.04	50.14
Piledriver	33.24	16.00	49.24
Future Increase(s): Add $1.44/hr on 6/1/2015; Add $1.44/hr on 6/1/2016.			
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.			

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
	$	$	$
Roofer or Waterproofer	21.00	6.77	27.77
Teledata Technician or Installer	22.25	12.24	34.49
Tuckpointer, Caulker or Cleaner	30.85	17.61	48.46
Underwater Diver (Except on Great Lakes)	35.40	15.90	51.30
Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	35.55	15.57	51.12
Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	31.60	14.98	46.58
Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	27.65	13.44	41.09
Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	25.68	12.83	38.51
Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	11.63	33.38
TRUCK DRIVERS			
Single Axle or Two Axle	25.18	18.31	43.49
Future Increase(s): Add $1.15/hr on 6/1/2015. Premium Pay: DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.			
Three or More Axle	25.28	18.31	43.59
Future Increase(s): Add $1.15/hr on 6/1/2015. Premium Pay: DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.			
Articulated, Euclid, Dumptor, Off Road Material Hauler	30.27	21.15	51.42
Future Increase(s): Add $1.25/hr on 6/1/2015; Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm.			
Pavement Marking Vehicle	33.22	14.77	47.99
Shadow or Pilot Vehicle	24.37	17.77	42.14
Truck Mechanic	24.52	17.77	42.29
LABORERS			
General Laborer	30.13	15.14	45.27
Future Increase(s): Add $1.05/hr eff. 06/01/2015; Add $1.00/hr eff. 06/01/2016; Add $1.00/hr eff. 06/01/2017 Premium Pay: Add $.10/hr for topman, air tool operator, vibrator or tamper operator (mechanical hand operated), chain saw operator and demolition burning torch laborer; Add $.15/hr for bituminous worker (raker and luteman), formsetter (curb, sidewalk and pavement) and strike off man; Add $.20/hr for blaster and powderman; Add $.25/hr for bottomman; Add $.35/hr for line and grade specialist; Add $.45/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	18.00	0.00	18.00
Landscaper	30.13	15.14	45.27
Future Increase(s): Add $1.05/hr eff. 06/01/2015; Add $1.00/hr eff. 06/01/2016; Add $1.00/hr eff. 06/01/2017 Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination			

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
	$	$	$
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	26.76	15.14	41.90
Future Increase(s): Add $1.05/hr eff. 06/01/2015; Add $1.00/hr eff. 06/01/2016; Add $1.00/hr eff. 06/01/2017 Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr 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)	18.33	8.92	27.25
Railroad Track Laborer	17.00	3.00	20.00
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).	37.72	21.15	58.87
Future Increase(s): Add $1.25/hr on 6/1/2015; Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm.			
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.	37.22	21.15	58.37
Future Increase(s): Add $1.25/hr on 6/1/2015; Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm.			
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	36.72	21.15	57.87

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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 & A- Frames. Future Increase(s): Add $1.25/hr on 6/1/2015; Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm.			
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 $1.25/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	21.15	57.87
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 $1.25/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.	36.17	21.15	57.32
Fiber Optic Cable Equipment.	28.89	17.95	46.84
Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	41.65	21.71	63.36
Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder.	41.65	21.71	63.36
Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs.	35.72	15.94	51.66

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
	$	$	$
or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.			
Work Performed on the Great Lakes Including Deck Equipment Operator, Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks-Great Lakes ONLY.	35.46	20.40	55.86

SUPERSEDES DECISION WI20120010
U. S. DEPARTMENT OF LABOR
(DAVIS-BACON ACT, MINIMUM WAGE RATES)

STATE: Wisconsin
GENERAL DECISION NUMBER: WI160010
DATE: February 26, 2016
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	$30.67	15.55
Group 2: Air Tool Operator; Joint Sawer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated);	30.77	15.55
Group 3: Bituminous Worker (Raker and Luteman); Formsetter (Curb, Sidewalk, and Pavement); Strike Off man	30.82	15.55
Group 4: Line and Grade Specialist	31.02	15.55
Group 5: Blaster and Powderman	30.87	15.55
Group 6: Flagperson; Traffic Control	27.30	15.55

CLASSES OF LABORER AND MECHANICS

Bricklayer	31.59	16.39
Carpenter	30.48	15.80
Millwright	32.11	15.80
Piledriverman	30.98	15.80
Ironworker	29.27	23.96
Cement Mason/Concrete Finisher	34.16	16.38
Electrician		See Page 3
Line Construction		
Lineman	42.14	32% + 5.00
Heavy Equipment Operator	40.03	32% + 5.00
Equipment Operator	33.71	32% + 5.00
Heavy Groundman Driver	26.78	14.11
Light Groundman Driver	24.86	13.45
Groundsman	23.18	32% + 5.00
Painters	23.74	11.72
Well Drilling:		
Well Driller	16.52	3.70

Truck Drivers:	Basic Hourly Rates	Fringe Benefits
1 & 2 Axles	25.63	18.96
Three or More Axles; Euclids, Dumptor & Articulated, Truck Mechanic	25.63	18.96

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 8, 2016; Modification #1 dated January 29, 2016; Modification #2 dated February 26, 2016.

SUPERSEDES DECISION WI20120010
U. S. DEPARTMENT OF LABOR
(DAVIS-BACON ACT, MINIMUM WAGE RATES)

STATE: Wisconsin
GENERAL DECISION NUMBER: WI160010
DATE: February 26, 2016
DESCRIPTION OF WORK: Highways and Airport Runway and Taxiway Construction

POWER EQUIPMENT OPERATORS CLASSIFICATION:	Basic Hourly Rates	Fringe Benefits
Group 1: Cranes, tower cranes and derricks, with or without attachments, with a lifting capacity of over 100 tons or cranes, tower cranes and derricks with boom, leads and/or jib lengths measuring 176 feet or longer	$38.27	$21.55
Group 2: Cranes, tower cranes and derricks, with or without attachments, with a lifting capacity of 100 tons or less or cranes, tower cranes and derricks with boom, leads and/or jib lengths measuring 175 feet or less, and backhoes (excavators) having a manufacturer's rated capacity of 3 cu. yds. and over, caisson rigs, pile driver, dredge operator, dredge engineer.	$37.77	$21.55
Group 3: Mechanic or welder - heavy duty equipment, cranes with a lifting capacity of 25 tons or less, concrete breaker (manual or remote); vibrator/sonic concrete breaker; concrete laser screed; concrete slipform paver; concrete batch plant operator; concrete pavement spreader - heavy duty (rubber tired); concrete spreader and distributor, automatic subgrader (concrete); concrete grinder and planing machine; concrete slipform curb and gutter machine; slipform concrete placer; tube finisher; hydro blaster (10,000 psi and over); bridge paver; concrete conveyor system; concrete pump; stabilizing mixer (self propelled); shoulder widener; asphalt plant engineer; bituminous paver; bump cutter and grooving machine; milling machine; screed (bituminous paver); asphalt heater, planer and scarifier; backhoes (excavators) having a manufacturers rated capacity of under 3 cu. yds.; grader or motor patrol; tractor (scraper, dozer, pusher, loader); scraper - rubber tired (single or twin engine); endloader hydraulic backhoe (tractor-type); trenching machine; skid rigs; tractor, side boom (heavy); drilling or boring machine (mechanical heavy); roller (over 5 tons); percussion or rotary drilling machine; air track; blaster; loading machine (conveyor); tugger; boatmen; winches and A-frames; post driver; material hoist operator.	$37.27	$21.55
Group 4: Greaser, roller steel (5 tons or less); roller (pneumatic tired) - self-propelled; tractor (mounted or towed compactors and light equipment); shouldering machine; self-propelled chip spreader; concrete spreader; finishing machine; mechanical float; curing machine; power subgrader; joint saw (multiple blade) belting machine; burlap machine; texturing machine; tractor, endloader (rubber tired) - light; jeep digger; fork lift; mulcher; launch operator; fireman; environmental burner.	$37.01	$21.55
Group 5: Air compressor; power pack; vibratory hammer and extractor; heavy equipment, leadman; tank car heaters; stump chipper; curb machine operator; concrete pro-portioning plants generators; mudjack operator; rock breaker; crusher or screening plant; screed (milling machine); automatic belt conveyor and surge bin; pug mill operator; oiler; pump (over 3 inches); drilling machine helper.	$36.72	$21.55
Group 6: Off – road material hauler with or without ejector	$30.82	$21.55

Premium Pay:
EPA Level "A" protection - $3.00 per hour
EPA Level "B" protection - $2.00 per hour
EPA Level "C" protection - $1.00 per hours

SUPERSEDES DECISION WI20120010
U. S. DEPARTMENT OF LABOR
(DAVIS-BACON ACT, MINIMUM WAGE RATES)

STATE: Wisconsin
GENERAL DECISION NUMBER: WI160010
DATE: February 26, 2016
DESCRIPTION OF WORK: Highways and Airport Runway and Taxiway Construction

LABORERS CLASSIFICATION:	Rates	Benefits
Electricians		
Area 1	$29.60	26.5%+ 9.15
Area 2:		
Electricians	31.21	18.92
Area 3:		
Electrical contracts under $130,000	28.96	18.26
Electrical contracts over $130,000	31.16	18.34
Area 4:	29.84	29.50% + 9.37
Area 5	28.96	24.85% + 9.70
Area 6	37.02	29%+9.77
Area 8		
Electricians	31.90	24.95% + 10.46
Area 9:		
Electricians	35.75	19.87
Area 10	29.64	20.54
Area 11	33.90	24.47
Area 12	34.98	19.89
Area 13	35.13	23.09
Teledata System Installer		
Area 14		
Installer/Technician	22.50	12.72
Sound & Communications		
Area 15		
Installer	16.47	14.84
Technician	26.00	17.70

Area 1 - CALUMET (except township of New Holstein), GREEN LAKE (N. part, including Townships of Berlin, St. Marie and Seneca), MARQUETTE (N. part, including Townships of Crystal Lake, Neshkoro, Newton & Springfield), OUTAGAMIE, WAUPACA, WAUSHARA and WINNEBAGO COUNTIES.

Area 2 - ASHLAND, BARRON, BAYFIELD, BUFFALO, BURNETT, CHIPPEWA, CLARK (except Mayville, Colby, Unity, Sherman, Fremont, Lynn and Sherwood), CRAWFORD, DUNN, EAU CLAIRE, GRANT, IRON, JACKSON, LA CROSSE, MONROE, PEPIN, PIERCE, POLK, PRICE, RICHLAND, RUSK, ST. CROIX, SAWYER, TAYLOR, TREMPEALEAU, VERNON and WASHBURN COUNTIES

Area 3 - FLORENCE (townships of Aurora, Commonwealth, Fern, Florence and Homestead), MARINETTE (Niagara township)

Area 4 - BROWN, DOOR, KEWAUNEE, MANITOWOC (except Schleswig), MARINETTE (Wausauke and area south thereof), OCONTO, MENOMINEE (East of a line 6 miles West of the West boundary of Oconto County), SHAWANO (except area North of Townships of Aniwa and Hutchins) COUNTIES.

Area 5 - ADAMS, CLARK (Colby, Freemont, Lynn, Mayville, Sherman, Sherwood, Unity), FOREST, JUNEAU, LANGLADE, LINCOLN, MARATHON, MARINETTE (Area North of the town of Wausaukee), MENOMINEE (Area West of a line 6 miles West of the West boundary of Oconto County), ONEIDA, PORTAGE, SHAWANO (Area North of the townships of Aniwa and Hutchins), VILAS AND WOOD COUNTIES

Area 6 - KENOSHA COUNTY

Area 8 - DODGE, (Emmet Township only), GREEN, JEFFERSON, LAFAYETTE, RACINE (Burlington township), ROCK and WALWORTH COUNTIES

Area 9 - COLUMBIA, DANE, DODGE, (area west of Hwy. 26, except Chester & Emmet Townships), GREEN LAKE (except townships of Berlin, Seneca and St. Marie), IOWA, MARQUETTE (except townships of Neshkoka, Crystal Lake, Newton and Springfield), and SAUK COUNTIES

Area 10 - CALUMET (Township of New Holstein), DODGE (East of Hwy. 26 including Chester Township), FOND DU LAC, MANITOWOC (Schleswig), and SHEBOYGAN COUNTIES

Area 11 - DOUGLAS COUNTY

Area 12 - RACINE (except Burlington township) COUNTY

Area 13 - MILWAUKEE, OZAUKEE, WASHINGTON and WAUKESHA COUNTIES

Area 14 - Statewide.

Area 15 - DODGE (East of Hwy 26 including Chester Twp, excluding Emmet Twp), FOND DU LAC (Except Waupun), MILWAUKEE, OZAUKEE, MANITOWOC (Schleswig), WASHINGTON, AND WAUKESHA COUNTIES.

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: 20160412032

PROJECT(S): 4987-07-71, 4987-07-72

FEDERAL ID(S): WISC 2016123, WISC 2016124

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SECTION 0001 Roadway Items					
0010	619.1000 Mobilization	1.000 EACH		.		.
0020	643.0100 Traffic Control (project) 02. 4987-07-72	1.000 EACH		.		.
0030	643.0100 Traffic Control (project) 01. 4987-07-71	1.000 EACH		.		.
0040	ASP.1T0A On-the-Job Training Apprentice at $5.00/HR	300.000 HRS	5.00000		1500.00	
0050	ASP.1T0G On-the-Job Training Graduate at $5.00/HR	600.000 HRS	5.00000		3000.00	
0060	SPV.0105 Special 01. Mason Street Bridge Remote Operations Work, B-05-0134	LUMP	LUMP			.
0070	SPV.0105 Special 02. Mason Street Bridge CCTV System, B-05-0134	LUMP	LUMP			.
0080	SPV.0105 Special 03. Main Street Bridge Electrical and Remote Operations Work, B-05-0311	LUMP	LUMP			.
0090	SPV.0105 Special 04. Main Street Bridge CCTV System, B-05-0311	LUMP	LUMP			.
	SECTION 0001 TOTAL					.
	TOTAL BID					.

PLEASE ATTACH SCHEDULE OF ITEMS HERE