Special Provisions

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SPECIAL PROVISIONS

1. General.

Perform the work under this construction contract for Project 1229-04-74, I-43 North South Freeway, W County Line Road Interchange, Milwaukee and Ozaukee 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, 2022 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 (20210708)

2. Scope of Work.

The work under this contract shall consist of removals, grading, base aggregate, concrete pavement, asphaltic pavement, concrete curb and gutter, concrete barrier, erosion control, storm sewer, permanent signing, traffic control, pavement marking, restoration, structures, lighting, signals, FTMS and all incidental items necessary to complete the work as shown on the plans and included in the proposal and contract.

Structures:

Bridges

B-40-918 B-45-102 B-45-103 B-45-106

Noise Barriers

N-40-101

Retaining Walls

R-40-653 R-40-654 R-45-27 R-45-28 R-45-29 R-45-33

R-45-34 R-45-44

Sign Structures

S-40-3058 S-40-3059 S-45-5 S-45-217 S-45-218

Culverts

C-45-60

104-005 (20090901)

3. Partnering Charter.

Add the following to standard spec 104.1:

The department intends to encourage, support, and implement a partnering system on this contract with the full participation of the contractor and all subcontractors.

Partnering is a performance system designed to achieve an optimal relationship between all parties to a construction contract. Further, it is a method of conducting business in the construction profession without unnecessary, excessive, or disruptive external party involvement. The partnering system is structured to draw on the strengths of each participating organization to identify and achieve mutually profitable objectives.

The partnering system will consist of three main elements: preparation of a partnering charter, establishing and implementing a partnering effectiveness evaluation technique, and establishing and implementing an issue resolution procedure.

It is anticipated that within 14 calendar days of the issuance of a notice to proceed with construction, the department, its consultants, and the prime contractor on the project will participate, with their subcontractors, in a 1 day meeting to write a partnering charter.

The partnering charter is the basic manual for operating the partnering system. It includes, at a minimum, the mission of the project and the objectives of the project team. In addition, it outlines, in broad terms, the project evaluation methods to be used and the dispute resolution process to be applied to conflict issues as they arise on the job.

It is anticipated that the partnering charter meeting participants will establish and publish the partnering effectiveness evaluation method. This partnering evaluation method will set guidelines for periodically measuring project performance against the mission and objectives set out in the charter.

It is also anticipated that the partnering charter meeting participants will establish and publish the issue resolution procedure, designed to help resolve disputes quickly, satisfactorily, and as near as possible to the originating level of the dispute.

The contractor is required to participate in establishing these three elements of the partnering system in cooperation with the department and its consultants. Outside costs for effectuating the partnering effort will be mutually agreed to by both parties and will be shared equally.

The establishment of a partnership charter on this project will not change the legal relationship of the parties to the contract nor relieve either party from any of the terms of the contract.

stp-104-010 (20150630)

4. Non-mandatory Pre-Bid Meeting.

Add the following to standard spec 102.3.1 as paragraph three:

(3) Prospective bidders are required to attend a non-mandatory pre-bid meeting on November, 16th 2021 at 2:00 PM. The meeting link is shown below and will also be published on the HCCI website.

Insert meeting link, number, and access code

The meeting agenda will include the following:

- Corridor Overview
- The meeting will discuss project specific issues for IDs 1229-04-74
- Safety
- Contractor Compliance
- DBE Business Outreach Provision

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

~~sef-102-015 (20180104)~~

5. Prosecution and Progress.

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

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

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

Furnish a written request for a conditional notice to proceed to the Project engineer for approval to begin work prior to January 1, 2022. The request for a conditional notice to proceed shall be specific and include description of work, work zones, schedule, haul routes and traffic impacts. The conditional notice to proceed will not affect the completion date. All construction equipment, traffic impacts and activities utilized or mobilized prior to January 1, 2022 shall not disrupt the ongoing construction contracts listed in the Other Contracts section of the Specifications.

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

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

Be advised that there will be multiple mobilizations and/or remobilizations to complete construction operations. No additional payment will be made, by the department, for additional mobilizations.

Obtain all permits required that may be required for off peak and night time work, including hauling of materials. Cost of all permits are incidental to the project.

Provide seven day advanced notice to the department prior to removing freeway structures.

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

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

Clear debris and buildup at temporary precast concrete barrier scuppers and openings as directed by the engineer to ensure proper drainage is maintained. Cost of clearing debris and buildup from scuppers are incidental to the concrete barrier temporary precast bid items.

Cover existing and new signs as shown in the plans and as directed by the engineer. Do not uncover signs that are to remain left in place and covered. No additional compensation will be made for leaving covering in place.

A. CPM Progress Schedule

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

B. Schedule of Operations

Traffic shifts shown in a given stage may occur at different times during that stage depending on the controlling elements for a given traffic movement. Do not move to the next stage until all work in the current stage is completed or as approved by the engineer. The department anticipates that the schedule for each stage shall be as follows:

Stage 1 Construction:

- Demolition of bridges at Port Washington Road and Donges Bay Road.
- Construct temporary pavement in the gap left by the Work Zone Preparation (1229-04-70) on the IH 43 NB outside shoulder.
- Construct temporary pavement gaps left by the Work Zone Preparation (1229-04-70) once the Port Washington Bridge abutments have been removed.
- Construct critical pipe crossings during overnight closures for bridge demolition.

Stage 2 Construction:

Freeway and Ramp Construction

- Construct median, inside shoulders and lanes 1 and 2 on I-43 northbound and southbound, leaving a gap at County Line Road.
- Construct mainline storm sewer trunk and connect to existing 60-inch storm sewer
- Construct temporary pavement in the median at the north and south limits of the project for the temporary cross overs to be used in Stages 4 and 5.
- Demolition of the northbound off ramp to Port Washington Road and the southbound on ramp from County Line Road.
- Construct Fish Creek box culvert (C-45-60) within the I-43 work zone limits.
- Construct a diversion channel for Fish Creek, west of the freeway, and begin construction of proposed junction box.

Local Road Construction

- Construct Port Washington Road bridge (B-45-102 & 103)
- Construct Donges Bay Road bridge (B-45-106)
- Construct Donges Bay Road.
- Construct Port Washington Road between County Line Road and Katherine Drive.
- Construct Port Washington Road at intersection of Port Washington Lane
- Construct temporary pavement connection in the median to the north and south of County Line Road.
- Construct temporary pavement in the median on Port Washington Road south of Zedler Lane.

Stage 3A Construction:

Freeway and Ramp Construction

- Construct lane 3 and outside shoulder of I-43, leaving a gap at County Line Road.
- Begin construction on ramps A, B, C & D
- Construct N-40-101
- Construct S-45-217, S-45-218, S-45-5
- Fish Creek box culvert east and west of I-43, junction chamber west of I-43.

Local Road Construction

- Complete construction on Port Washington Road bridge.
- Construct Katherine Drive with gap at culvert and diversion channel.
- Construct connection from Port Washington Road to Port Washington Lane.
- Construct west half of Port Washington Road from south limits of project to County Line Road.
- Construct intersection of Port Washington Road and Katherine Drive.

Stage 3B Construction:

Freeway and Ramp Construction

- Continue construction on lane 3 and outside shoulder of I-43, leaving a gap at County Line Road.
- Continue construction on ramps A, B, C & D
- Continue construction N-40-101
- Continue construction on Fish Creek box culvert east and west of I-43, junction chamber west of I-43.

Local Road Construction

- Port Washington Road from intersection of Port Washington Lane to intersection of Zedler Lane.

Stage 4A Construction:

Freeway and Ramp Construction

- Construct temporary pavement gap left by the Work Zone Preparation (1229-04-70) once the County Line Road Bridge abutments have been removed.

Local Road Construction

- Demolish and start construction of County Line Road bridge.
- Construct S-40-3059
- Begin Thin Polymer Overlay on Port Washington Road Bridges

Stage 4B Construction:

Freeway and Ramp Construction

- Construct southbound lanes of I-43 in gap north and south of County Line Road.

Local Road Construction

- West half of intersection of County Line Road and Port Washington Road.
- County Line road from east limits of project to Port Washington Lane.
- Port Washington Lane from County Line Road to north limits of construction.
- Complete Thin Polymer Overlay on Port Washington Road Bridges

Stage 4C Construction:

Freeway and Ramp Construction

- Continue construction on southbound lanes of I-43 in gap north and south of County Line Road.
- Construct temporary asphalt wedge in the outside shoulder of I-43 southbound along the superelevated section.

Local Road Construction

- East half of Port Washington Road from south limits of project to County Line Road.
- Continue construction of County Line Road bridge.
- Continue County Line Road from east limits of project to Port Washington Lane.
- County Line Road from Port Washington Road to east limits of project.
- Continue Port Washington Lane from County Line Road to north limits of construction.

Stage 5 Construction:

Freeway and Ramp Construction

- Northbound lanes of I-43 in gap north and south of County Line Road
- Construct S-40-3058

Local Road Construction

- Complete County Line Road bridge.
- County Line Road from Port Washington Lane to the bridge.
- County Line Road from Port Washington Road to the bridge.
- Median of Port Washington Road north of County Line Road.

C. Nightly Freeway Shoulder Restoration

When working on the IH 43 NB and SB shoulders without the protection of concrete barrier temporary precast, no open excavation or storing of materials and equipment within the clear zones and no vertical drop-offs greater than two-inches adjacent to the travel lanes will be permitted during Peak Hours and Off Peak Hours with no lane closures. At the end of every Off Peak and night time closure, fill all excavated areas, restore the shoulders with base aggregate dense as shown on the plans, and remove all materials and equipment from the clear zones. Provide shoulder cross slopes with an 8% maximum rollover with the adjacent travel lanes for Peak Hour and Off Peak Hour freeway traffic operations providing two lanes in each direction. Before opening to two lanes of traffic, place traffic control drums at the inside edge of

shoulder as shown on the plans. Nightly freeway shoulder restoration will be paid for under the Base Aggregate Dense 1 ¼-Inch bid item. Removal of excess material will be paid for under the bid item Prepare Foundation for Asphaltic Shoulders.

In Stage 1, when placing HMA pavement lower layers per the layers and gradations shown on the plans, no vertical drop-offs greater than two-inches will be permitted where the shoulder abuts the adjacent travel lanes for Peak Hour and Off Peak Hour freeway traffic operations providing two lanes in each direction. Before opening to two lanes of traffic, place traffic control drums at the inside edge of shoulder as shown on the plans.

D. Contractor Coordination

Provide an individual to serve as the contractor's sole point of contact for field utility coordination, traffic closure coordination, and communication for the duration of the project.

Obtain prior acceptance from the engineer and the Construction Program Work Zone for Full Freeway Closures. Notify local emergency and police agencies seven calendar days prior to freeway closure.

Notify the engineer, businesses and residents that live along County Line Road, CTH W, Port Washington Lane, and Donges Bay Road five business days in advance of restricting access to their houses or business.

Notify the engineer five business days in advance of restricting access to the West Lot of Katherine Kearney Carpenter Park.

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

E. Ramp Closures

All ramps within projects limits will be closed prior to construction.

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

F. Portable Changeable Message Signs

Obtain acceptance from the engineer regarding the wording of all messages on portable changeable message signs prior to placing the message.

G. Freeway and Service Ramp Work Restrictions

Definitions

The following definitions apply to this contract for freeway and service ramp work restrictions:

Freeway No Closures (Peak Hours)

5:30 AM – 8:30 PM	Monday, Tuesday, Wednesday, Thursday
5:30 AM – 10:00 PM	Friday
9:00 AM – 10:00 PM	Saturday
9:00 AM – 8:30 PM	Sunday

Freeway Closure Hours (Off Peak Hours)

8:30 PM – 5:30 AM	Monday PM to Friday AM
10:00 PM – 9:00 AM	Friday PM to Saturday AM
10:00 PM – 9:00 AM	Saturday PM to Sunday AM
8:30 PM – 5:30 AM	Sunday PM to Monday AM

Service Ramp Closure Hours

8:00 PM – 6:00 AM	Sunday PM to Monday AM, Monday PM to Tuesday AM, Tuesday PM to Wednesday AM, Wednesday PM to Thursday AM, Thursday PM to Friday AM
9:30 PM – 9:30 AM	Friday PM to Saturday AM, Saturday PM to Sunday AM

Full Freeway Closure Hours

11:00 PM – 4:30 AM	Sunday PM to Monday AM, Monday PM to Tuesday AM, Tuesday PM to Wednesday AM, Wednesday PM to Thursday AM, Thursday PM to Friday AM

11:00 PM – 6:30 AM	Friday PM to Saturday AM, Saturday PM to Sunday AM

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

Follow plan details for closures. Lane restrictions of the freeway beyond that shown on the traffic control plans are subject to lane rental assessments and must be approved by the engineer. If plan details are not provided in the traffic control plan, furnish plans for review by the engineer. Once approved, allow at least three business days prior to the closure of roadway, lane, and ramp as identified in Contractor Coordination.

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

Provide gaps in the work zone as needed to maintain ingress and egress of construction operations.

Do not, at any time, store equipment or materials in the median area without obtaining prior permission of the engineer, beyond that shown on the traffic control plans.

H. Rolling Closure

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

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

sef-108-031 (20170406)

I. Closure Restrictions

General

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

To minimize the total number of full freeway closures for girder erection, and bridge demolition, the contractor is allowed extended full freeway closures between 11:00 PM and 4:30 AM Sunday through Thursday nights and between 11:00 PM and 6:00 AM for Friday and Saturday nights. A full freeway closure is defined as one direction of the freeway. Closing both directions of the freeway constitutes using two full freeway closures. A total of six extended full freeway closures are allowed. Bridge superstructure demolition activities will require a full freeway closure in both directions. These closures are to be utilized only for bridge demolition, girder erection, and temporary drainage system construction for the following locations:

- Port Washington Road bridge demolition and construction
- Donges Bay Road bridge demolition and construction
- County Line Road bridge demolition and construction
- Critical Pipe Crossings construction at stations 1287+75 & 1333+05

Submit requests for extended hour closures 14 calendar days prior to the planned closure events. Submit requests for closures beyond extended hours up to 20 hours 30 calendar days prior to the closure event. For closures greater than 20 hours, submit requests 45 calendar days prior to the planned closure event.

Obtain prior approval from the engineer and the Construction Program Work Zone, (414) 640-1148, for said closures.

Submit requests for extended night time closure hours 14 calendar days prior to the planned closure events. Obtain prior approval from the engineer and the Construction Program Work Zone, (414) 640-1148, for said closures. Notify local emergency and police agencies 7 calendar days prior to closures.

J. Work Zone Ingress/Egress

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

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

Access into the work zones are not allowed directly from the freeway during peak hours except where appropriate acceleration and deceleration lanes and traffic control are provided, as approved by the engineer. Access into the work zones from the freeway will be allowed at other times, subject to approval by the engineer, if operations can be safely accomplished and do not result in non-construction traffic entering the work zones. Exiting work zones directly onto the freeway are only allowed when operations do not obstruct or slow traffic on the freeway. All construction vehicles shall yield to all through traffic at all locations.

SEF Rev. 13_0425_revised

K. Local Street Closure Restrictions

Definitions

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

Peak Hours

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

Off Peak Hours (Night Time Closure Hours)

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

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

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

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

Do not begin or continue any work that closes local street traffic lanes or intersection outside the allowed time periods specified in this contract. If the contractor fails to open local roadway lanes of traffic and/or intersections to traffic by the specified times, assessments shown in the article Lane Rental Assessment

will be placed upon the contractor based on the hourly rental rate that the non-compliant closure occurs. The total assessment to the contractor will be the summation of the separate assessments for each local street traffic lane and local street intersection closure violation.

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

Keep sidewalks open unless otherwise shown on the plans or as approved by the engineer. Provide adequate temporary sidewalk and bridging over obstructions in the sidewalk area, as directed by the engineer.

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

Katherine Drive

Katherine Drive may be closed from N Port Washington Road to W Zedler Lane, as shown in Stages 2 and 3 for a one-time period not to exceed 60 consecutive calendar days to allow for the construction of C-45-60. This closure will only be allowed after Donges Bay Road has been reopened to traffic.

L. All Work Restrictions

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

Provide the Wisconsin State Patrol and Ozaukee County Highway Maintenance with a 24-hour emergency contact number for when maintenance is required.

Replace standard spec 108.10.2.2(2) with the following:

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

Replace standard spec 108.10.2.2(3) with the following:

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

M. Interim Completion of Work November 4, 2022
Supplement standard spec 108.11 as follows.

Stage 3B C-45-60: Complete Stage 3B work necessary to reopen Katherine Drive with the 60 consecutive calendar days.

If the contractor fails to open all lanes of Katherine Drive prior to 5:00 AM on November 4, 2022, the department will assess the contractor $1,000 in interim liquidated damages per day for each calendar day after 5:00 AM on November 4, 2022 that Katherine Drive is not open to traffic. An entire calendar day will be charged for any period of time within a calendar day that Katherine Drive work is not open to traffic beyond 5:00 AM, on November 4, 2022.

Stage 3B B-45-102 & B-45-103: Complete Stage 3B work necessary to reopen Port Washington Road before winter shutdown.

If the contractor fails to complete all work necessary to open all lanes of N. Port Washington Road prior to 5:00 AM on November 4, 2022, the department will assess the contractor $3,000 in interim liquidated damages per day for each calendar day after 5:00 AM on November 4, 2022 that N. Port Washington

Road is not open to traffic. An entire calendar day will be charged for any period of time within a calendar day that the N. Port Washington Road is not open to traffic beyond 5:00 AM, on November 4, 2022.

N. Enhanced Final Liquidated Damages for Final Completion by June 30, 2023

Replace standard spec 108.11 paragraph (3) as follows:

The department will assess $10,000 in daily liquidated damages. These liquidated damages reflect the cost of engineering, supervision, and a portion of road user costs.

O. Maintenance

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

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

P. Winter Maintenance

Milwaukee County and Ozaukee County will perform snow removal operations for freeway, ramp lanes, shoulders and county highways that are open to traffic. The City of Mequon, and Villages or River Hills and Bayside will perform snow removal operations for local streets that are open to traffic. Provide for snow removal in those areas closed to traffic as required to facilitate safe construction operations and stage changes and as required to eliminate snow melt run-off from crossing active roadways. Provide Milwaukee County Highway Maintenance and Milwaukee County Sheriff's Department with a 24-hour emergency contact number for when maintenance is required.

SEF Rev. 12_0330_revised

Q. Northern Long-eared Bat (*Myotis septentrionalis*)

Northern Long-eared Bats (NLEB) have the potential to inhabit the project limits because they roost in trees. Roosts may not have been observed on this project, but conditions to support the species exist. The species and all active roosts are protected by the Federal Endangered Species Act. If an individual bat or active roost is encountered during construction operations, stop work and notify the engineer and the WisDOT Regional Environmental Coordinator (REC).

In accordance to the final 4(d) rule issued for the NLEB, the department has determined that the proposed activity may affect, but will not result in prohibited take of the NLEB. The activity involves tree removal, but will not occur within 0.25 miles of a known hibernacula, nor will the activity remove a known maternity roost tree or any other tree within 150 feet of a known maternity roost tree.

If additional trees need to be removed, no Clearing shall occur without prior approval from the engineer, following coordination with the WisDOT REC. Additional tree removal beyond the area originally specified will require consultation with the United States Fish and Wildlife Service (USFWS) and may require a bat presence/absence survey. Notify the engineer if additional Clearing cannot be avoided to begin coordination with the WisDOT REC. The WisDOT REC will initiate consultation with the USFWS and determine if a survey is necessary.

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

R. Rusty Patched Bumble Bee (*Bombus affinis*)

The rusty patched bumble bee (Bombus affinis) was listed as endangered by the U.S. Fish and Wildlife Service (USFWS) under the Endangered Species Act, effective March 21, 2017. Construction activities such as grading outside the mowed shoulder area have the potential to impact ground nests and wildflowers that may serve as a food source for the bee. If an active rusty-patched bumblebee nest is encountered in construction areas, contact the WisDOT Regional Environmental Coordinator, who will coordinate with USFWS.

S. Migratory Birds

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 from April 15 to August 31.

Remove existing structures before the April 15th nesting season. If existing structures are planned to be removed after April 15th, either prevent active nests from becoming established or prevent birds from nesting by installing and/or maintaining a suitable deterrent device on the remaining structure prior to nesting activity. As a last resort, 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. This work is incidental to the contract.

Clearing of existing trees and shrubs shall occur between September 1st and April 14th.

6. Traffic.

General
Keep IH 43, and all service ramps open to through traffic at all times for the duration of this project except as noted below and in the Prosecution and Progress article in these special provisions.

The construction sequence, including the associated traffic control, shall be substantially accomplished as detailed in the Traffic Control Plans, and as described herein.

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

Do not store equipment, vehicles, or materials on adjacent streets beyond the project limits without specific approval of the engineer.

Maintain emergency vehicle access at all times.

Prior to any traffic control being placed, provide the engineer, Wisconsin State Patrol, Milwaukee County Highway Maintenance, and Ozaukee County Highway Maintenance with the name and telephone number of a local person responsible for the emergency maintenance of traffic control.

Coordinate all traffic handling with the engineer. Place roadway signing as detailed on the plans and in conformance with the Manual on Uniform Traffic Control Devices (MUTCD), latest edition.

Employ such flag persons, signs, barricades, and drums as may be necessary to safeguard or protect hazards in the work zone, such as exposed manholes or drop-offs for vehicles and direct traffic at locations where construction operations may interfere or restrict the smooth flow of traffic. Make arrangements and be responsible for the prompt replacement of damaged or dislocated traffic control or guidance signs, day or night.

Traffic requirements under this contract shall be coordinated with other adjacent and concurrent Department of Transportation or local municipality projects. The contractor shall be responsible for implementing and coordinating with other contractors all traffic control as shown on the plans. Modifications to the traffic control plan may be required by the engineer to be safe and consistent with adjacent work by others.

Residential and Business Property Access
Maintain access to properties along County Line Road, CTH W, Port Washington Lane, Donges Bay Road, and all adjacent side streets, and any other local road effected by construction for local residents, businesses, and emergency vehicles. Maintain and keep open the access to all driveways and parking lots where alternative access is not available at all times by closing one driveway at a time, building half the driveway at a time and/or plating concrete work. Plating of concrete work, as directed by the engineer, is included in the item that is being plated. In parking lots that are being reconstructed, stage operations so that parking and access is maintained on existing or proposed base aggregate or pavement.

Schedule of Operations

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

Stage 1 Traffic:

- Reduce IH 43 NB and SB traffic to one lane during Freeway Closure Hours only. Ingress and Egress into the staging zones along IH 43, shall be completed during Freeway Closure Hours.

- Two night full freeway closures are anticipated for the demolition of existing Port Washington Road Bridge (B-45-17), demolition of existing Donges Bay Road Bridge (B-45-18) and installation of some critical SS pipe crossings.
- Close Port Washington Road from Port Washington Lane to County Line Road. Local access only
- Reduce Port Washington Road traffic to one lane in each direction on the existing NB lanes between the southern construction limit and County Line Road as shown on the traffic control plans.
- Detour NB traffic on Port Washington Road at County Line. See detour plans.
- Detour SB traffic on Port Washington Road at N. Port Washington Lane. See detour plans.
- Close Donges Bay Road. See detour plans.

Stage 2 Traffic:

- Shift IH 43 NB and SB traffic to widening built in both the WZ Prep Contract (1229-04-70) and in Stage 1. Ingress and Egress into the staging zones along IH 43, shall be completed during Freeway Closure Hours.

Stage 3A Traffic:

- Shift IH 43 NB and SB traffic to newly constructed inside shoulder and lane 1.
- Open Donges Bay Road to traffic
- Close Katherine Drive once Donges Bay Road is open to traffic. See details of closure in prosecution and progress.

Stage 3B Traffic:

- Shift traffic on Port Washington Road, at northern limit, to newly constructed pavement.
- Traffic unchanged on IH 43 NB and SB.
- Katherine Drive to be opened at end of stage.

Stage 4A Traffic:

- Close County Line Road. See detour plans.
- One night full freeway closure is anticipated for the demolition of existing County Line Road Bridge (B-40-338)
- Traffic unchanged on IH 43 NB and SB
- Traffic unchanged for Port Washington Road

Stage 4B Traffic:

- Shift all IH 43 traffic to completed NB pavement using crossovers built in stage 2.
- Traffic reduced to one lane in each direction on Port Washington Road bridge (TPO)
- Traffic unchanged on County Line Road

Stage 4C Traffic:

- Shift traffic on Port Washington Road to completed SB lanes from County Line Road to Southern limits.
- Traffic unchanged on IH 43 NB and SB

Stage 5 Traffic:

- Shift all IH 43 traffic to completed SB pavement using crossovers built in stage 2.
- All local roads open to traffic.

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	7 calendar days
Full roadway closures	7 calendar days
Ramp closures	7 calendar days
Detours	7 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
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.

stp-108-057 (20161130)

Notify the engineer and Construction Program Work Zone and Traffic Engineer if there are any changes in the schedule, early completions, or cancellations of scheduled work.

7. Holiday and Special Event Work Restrictions.

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

- From noon Friday, May 27, 2022 to 6:00 AM Tuesday, May 31, 2022 for Memorial Day
- From noon Friday, July 1, 2022 to 6:00 AM Tuesday, July 5, 2022 for Independence Day
- From noon Friday, September 2, 2022 to 6:00 AM Tuesday, September 6, 2022 for Labor Day
- From noon Wednesday, November 23, 2022 to 6:00 AM Monday, November 28, 2022 for Thanksgiving
- From noon Friday, December 23, 2022 to 6:00 AM Tuesday, December 27, 2022 for Christmas
- From noon Saturday, December 31, 2022 to 6:00 AM Tuesday, January 3, 2023 for New Years.
- From noon Friday, May 26, 2023 to 6:00 AM Tuesday, May 30, 2023 for Memorial Day

Provide any proposals to work within the work zone(s) adjacent to the highway carrying IH 43 traffic during the established holiday periods to the Project engineer for approval. Proposals will include a plan that establishes work type, hours of operations, and will certify no ingress/egress to the site by construction or worker vehicles from IH 43 consistent with the above restrictions for equipment, barricades, signs, lights, and any other material that might impede the free flow of traffic as noted above.

Long term ramp and roadway closures shown on the plans may remain in place during holiday work restrictions. New long-term closures of ramps and roadways must be coordinated with the holiday work restrictions.

Freeway Special Event Restrictions

During Summerfest scheduled for the years 2022 and 2023, keep open the following roadways until one hour after the event closes each night:

- Two open lanes on northbound and southbound IH 43

During Green Bay Packer home games, no lane closures will be allowed from four hours prior to the event until four hours after the event in both directions.

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

These restrictions also apply to hauling of materials and equipment.

stp-107-005 (20210113)

8. Utilities.

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

Additional information regarding recently relocated utility facilities may be available on permits issued to the utility companies. Permits for IH 43 can be viewed at the Region Office during normal working hours. Contact WisDOT SE Freeways Utility Coordinator Mike Birschbach at (414) 750-2532 for further information.

Underground and overhead utility facilities are located within the project limits. Utility adjustments are required for this construction project as noted below. Coordinate construction activities with a call to Diggers Hotline or a direct call to the utilities that have facilities in the area as required per state statute.

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

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

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

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

Known utilities in the project area are as follows:

The following utilities will relocate their facilities prior to construction:

1. **Port Washington Road (CTH W)**

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

- An existing underground communication line beginning beyond the southerly project limits running northerly along the east curb line and sidewalk of Port Washington Road with existing manholes located at Station 303+66, 29‘RT, Station 310+47, 45‘RT, Station 317+39, 27‘RT, Station 326+22, 82‘RT, and Station 339+58, 55‘RT and continuing northerly into Katherine Drive.
    - During construction and in conjunction with grading and paving operations, AT&T Wisconsin will adjust the existing manholes noted above to final pavement grade. The existing underground line will remain in place without adjustment.
- An existing underground communication line beginning at a manhole at Station 310+47, 45‘RT and running westerly crossing Port Washington Road and IH 43 to a manhole at Station 1295+91, 91‘LT where it turns northerly running along the east side of Pheasant Lane to a manhole at Station 1299+84, 100‘LT where it turns northwesterly to a manhole at Station 22CN+54, 55’RT. This existing line will remain in place without adjustment.
- Two existing above ground VRAD cabinets located at Station 317+35, 39‘RT and 317+43, 39‘RT. Prior to construction, AT&T Wisconsin will relocate these approximately 5’ to the east to get them out of the future path.

Mequon Municipal Water Utility has existing water main facilities in the following locations:

- An existing underground water main beginning beyond the southerly project limits running northeasterly along the east side of Port Washington Road to Station 302+36, 61'RT where it turns southwesterly crossing Port Washington Road to Station 302+48, 34'LT. From there it runs northwesterly to Station 305+58, 119'LT where it runs northerly along the existing east fence line of IH 43 to Station 324+29, 15'LT. From there it crosses County Line Road and continues northerly along the west side of Port Washington Road to Station 342+81, 34'LT where it turns northeasterly running along the west side of Katherine Drive.
    - Prior to construction Mequon Municipal Water Utility will construct a new underground water main connecting into the existing main at Station 303+75, 50'LT and running northwesterly to Station 306+11, 49'LT where it runs northerly connecting into the existing main at Station 321+55, 32'LT.
    - The existing main between Station 303+75, 50'LT and Station 321+55, 32'LT will be discontinued in place.
- An existing underground water main beginning beyond the westerly project limits at Station 1325+68, 194'LT running easterly crossing IH 43 and continuing to Station 340+15, 141'RT beyond the easterly project limits. This line will remain in place without adjustments.

Midwest Fiber Networks has existing underground and overhead communications facilities in the following locations:

- An existing underground communication line beginning at a We Energies' pole at Station 322+10, 79'RT and running westerly crossing Port Washington Road to Station 322+10, 30'LT where it turns northerly running along the west side of Port Washington Road crossing County Line Road to an existing handhole located at Station 29CN+57, 102'LT.
    - Prior to construction Midwest Fiber Network will construct a new underground communication line beginning at a We Energies' pole at Station 322+10, 79'RT and running northerly along the existing easterly Port Washington fence line crossing County Line Road to a new handhole at Station 326+51, 98'RT where it turns westerly crossing Port Washington Road to a new handhole at Station 326+21, 64'LT.
    - The existing communication line between the We Energies' pole at Station 322+10, 79'RT and the new handhole at Station 326+21, 64'LT will be discontinued in place.
- An existing overhead communications line on We Energies poles beginning beyond the southerly project limits running northerly along the easterly right of way of Port Washington Road to Station 322+10, 79'RT.
    - Prior to construction Midwest Fiber Networks will transfer their overhead wires to the new We Energies' poles from Station 298+80, 42'RT to Station 320+07, 44'RT.
- An existing underground communication line at the southern limits according to Sheila.

Spectrum has existing overhead and underground communications facilities in the following locations:

- An existing overhead communications line on We Energies poles beginning beyond the southerly project limits running northerly along the easterly right of way of Port Washington Road to Station 323+44, 94'RT and where it turns easterly to beyond the project limits.
    - Prior to construction Spectrum will transfer their overhead wires to the new We Energies' poles from Station 298+80, 42'RT to Station 320+07, 44'RT.
- An existing underground communication line beginning at Station 30CN+62, 50'LT and running northerly along the east side of Port Washington Road and continuing on into Katherine Drive to an existing pedestal at Station 10KTN+83, 21'RT. This line will remain in place without adjustment.

Verizon has existing underground communications facilities in the following locations:

- An existing underground communication line beginning at an existing handhole at Station 326+18, 94'RT running northerly along the east side of Port Washington Road to an existing handhole at Station 343+12, 63'RT.
    - Prior to construction Verizon will construct a new underground line splicing into the existing underground line at Station 341+79, 69'RT and running northerly along the east side of Katherine Drive to a new handhole at Station 12KTN+03, 32'RT. From here it runs westerly crossing Katherine Drive to Station 12KTN31+, 32'LT where it turns northerly to a new handhole at Station 14KTN+96, 61'LT. From here it turns westerly crossing under IH 43 to Station 347+92, 70'RT where it turns northwesterly to Station 348+73, 42'RT and continues to a new handhole at Station 351+69, 43'RT. From there it runs northerly along the east side of Port Washington Road to beyond the project limits to Station 354+35, 43'RT where it turns westerly connecting into a new handhole at Station 354+35, 33'RT and splicing into the existing underground line.

    - The existing communication line between Station 341+79, 69‘RT and the existing handhole at Station 343+12, 63‘RT will be discontinued in place.
- An existing underground communication line beginning at an existing handhole at Station 349+19, 47‘RT running northwesterly along the east side of Port Washington Road to Station 351+93, 29‘RT where it turns northerly to beyond the project limits.
    - The existing communication line between existing handhole at Station 349+19, 47‘RT and the new handhole at Station 354+35, 33‘RT will be discontinued in place.

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

- An existing overhead electric line beginning beyond the southerly project limits running northerly along the easterly right of way of Port Washington Road to Station 323+44, 94’RT and where it turns easterly to beyond the project limits.
    - Prior to construction We Energies will construct a new overhead electric line beginning at an existing pole at Station 298+80, 42’RT running northwesterly to a new pole at Station 300+31, 40’RT and continuing northwesterly connecting into an existing pole at Station 301+73, 40’RT.
    - The existing overhead line and poles between Station 298+80, 42’RT and Station 301+73, 40’RT will be removed.
    - Prior to construction We Energies will construct a new overhead electric line beginning at an existing pole at Station 303+21, 44’RT running northwesterly to a new pole at Station 305+41, 47’RT and continuing northwesterly connecting into an existing pole at Station 306+19, 55’RT.
    - Prior to construction We Energies will construct a new overhead guy wire beginning at an existing pole at Station 303+21, 44’RT and running westerly crossing Port Washington Road to a new guy pole at Station 303+52, 41’LT. The existing guy pole at Station 303+35, 34’LT and overhead guy wire will be removed.
    - The existing overhead line and poles between Station 303+21, 44’RT and Station 306+19, 55’RT will be removed.
    - Prior to construction We Energies will construct a new overhead electric line beginning at an existing pole at Station 314+39, 46’RT running northerly to a new pole at Station 316+25, 39’RT and continuing northerly connecting into an existing pole at Station 317+30, 40’RT.
    - The existing overhead line and poles between Station 314+39, 46’RT and Station 317+30, 40’RT will be removed.
    - Prior to construction We Energies will construct a new overhead electric line beginning at an existing pole at Station 317+30, 40’RT running northerly to a new pole at Station 319+09, 45’RT and continuing northerly connecting into the existing overhead line at a new pole at and Station 320+07, 44’RT.
    - The existing overhead line and poles between Station 317+30, 40’RT and Station 320+07, 44’RT will be removed.
    - Prior to construction We Energies will construct a new overhead guy wire beginning at an existing pole at Station 309+01, 44’RT and running westerly crossing IH 43 to an existing pole at Station 1295+13, 92’LT.
    - Prior to construction We Energies will construct a new overhead guy wire beginning at an existing pole at Station 317+30, 40’RT and running westerly crossing IH 43 to an existing pole at Station 1302+45, 122’LT.
    - Prior to construction We Energies will construct a new underground electric line beginning at a new pole at Station 319+09, 45’RT running easterly to beyond the project limits.
    - Prior to construction We Energies will construct a new overhead guy wire beginning at a new pole at and Station 320+07, 44’RT and running westerly crossing IH 43 to an existing pole at Station 1305+92, 182’LT.
- An existing underground electric service lines beginning at an existing pole Station 305+31, 44’RT and running westerly crossing Port Washington Road to an existing signal cabinet at Station 305+05, 79’LT. This service line will be discontinued in place.
- An existing overhead electric line beginning at a pole at Station 312+60, 45’RT and running westerly crossing IH 43 to an existing pole at Station 1298+12, 92’LT. This line will remain in place without adjustment.
- An existing overhead guy wire beginning at an existing pole Station 312+60, 45’RT and running westerly crossing Port Washington Road to a guy pole at Station 312+77, 16’LT. The existing guy pole at Station 312+77, 16’LT and overhead guy wire will be removed.
- An existing overhead electric service line beginning at a pole at Station 323+44, 94’RT and running northwesterly to a pole at Station 324+ , LT where it turns northeasterly to an existing light pole at Station 326+03, 79’RT. Prior to construction We Energies will remove the pole, light pole, and overhead line.

- An existing underground electric line beginning at a pole at Station 322+10, 79'RT and running northerly along the east side of Port Washington Road crossing County Line Road to Station 326+27, 91'RT and continuing along the east side of Port Washington Road to Station 342+03, 93'RT and turning easterly to beyond the project limits. This line will remain in place without adjustment.
- An existing underground electric service line beginning at a light pole at Station 326+03, 79'RT and running northerly along the east side of Port Washington Road to Station 329+23, 71'RT where it turns easterly to beyond the project limits. This line will be discontinued in place.
- A pair of existing underground electric service lines beginning at Station 330+69, 66'RT and running westerly crossing Port Washington Road to an existing transformer at Station 330+69, 68'LT.
    - Prior to construction We Energies will construct new underground service lines approximately 10' to the south of the existing lines. This existing service lines will be discontinued in place.

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

- An existing underground low-pressure gas line beginning beyond the southerly project limits running northeasterly along the east side of Port Washington Road to Station 302+89, 97'RT where it turns southwesterly to Station 303+07, 39'RT. From there it runs northwesterly along the easterly right of way of Port Washington Road to Station 313+74, 29'RT where it turns easterly to beyond the project limits. This line will remain in place without adjustment.
- An existing underground high-pressure gas line beginning beyond the southerly project limits running northeasterly along the east side of Port Washington Road to Station 302+79, 85'RT where it turns southwesterly into Port Washington Road to Station 302+99, 6'RT. From there it runs northwesterly along the middle of Port Washington Road and continuing northwesterly crossing IH 43 to Station 1295+10, 123'LT. From there it turns northerly running along the west side of Pheasant Lane to Station 1306+37, 129'LT. From there it runs northeasterly to Station 1308+01, 214'LT where it turns northerly crossing County Line Road.
    - Prior to construction We Energies will construct a new underground gas line beginning at a tee connection into the existing main at Station 302+92, 35'RT and running northwesterly to Station 310+52, 45'RT where it turns westerly crossing Port Washington Road and IH 43 to Station 1296+74, 124'LT connecting into the existing main.
    - The existing main between Station 302+92, 35'RT and Station 1296+74, 124'LT will be discontinued in place.
    - Prior to construction We Energies will construct a new underground gas line connecting into the existing main at Station 1301+09, 116'LT and running northwesterly to Station 1308+01, 214'LT connecting into the existing main.
    - The existing main between Station 1301+09, 116'LT and Station 1308+01, 214'LT will be discontinued in place.
- An existing underground low-pressure gas line beginning at Station 30CN+89, 71'LT and running northerly along the easterly right of way of Port Washington Road and continuing on into Katherine Drive. This line will remain in place without adjustment.

2. **<u>County Line Road</u>**

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

- An existing underground communication line beginning beyond the southerly project limits running northerly along the east side of Pheasant Lane to an existing manhole at Station 22CN+54, 55'RT and continuing northerly to Station 22CN+54, 29'RT and turning westerly to a pedestal located at Station 20CN+82, 22'RT beyond the westerly project limits. This line will remain in place without adjustment.
    - Prior to construction AT&T Wisconsin will move the line to the east to avoid the proposed inlet at Station 22CN+55, 32'RT.
- An existing underground communication line beginning at an existing manhole at Station 22CN+54, 55'RT and running easterly to Station 24CN+24, 46'RT where it curves northeasterly and then northerly to beyond the project limits. This line will remain in place without adjustment.
- An existing underground communication line beginning beyond the westerly project limits at a pedestal located at Station 20CN+82, 22'RT and running easterly along the south side of County Line Road to an existing pedestal at Station 24CN+97, 45'RT.
    - Prior to construction AT&T Wisconsin will relocate the existing pedestal 4' to the south to Station 20CN+82, 26'RT. This existing underground line will remain in place without adjustment.

Midwest Fiber Networks has existing underground communications facilities in the following locations:

- An existing underground communication line beginning beyond the westerly project limits at a We Energies' pole located at Station 25CN+13, 98' LT and running easterly crossing IH 43 to an existing handhole located at Station 29CN+57, 102'LT. This line will remain in place without adjustment.

Spectrum has existing overhead and underground communications facilities in the following locations:

- An existing overhead communications line on We Energies poles beginning beyond the southerly project limits running northwesterly to an existing pole at 24CN+94, 40'RT and turning northeasterly crossing County Line Road to a pole at Station 25CN+13, 98' LT and continuing beyond the project limits.
    - Prior to construction Spectrum will transfer their overhead wires to the new We Energies' poles from Station 25CN+05, 91'RT to Station 25CN+08, 67'LT.
- An existing underground communication line beginning at Station 30CN+62, 50'LT and running easterly along the north shoulder of County Line Road to beyond the easterly project limits. This line will remain in place without adjustment.

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

- An existing overhead electric service line beginning beyond the westerly project limits at a pole at Station 20CN+73, 20'RT and running easterly to a pole at Station 24CN+94, 40'RT.
    - Prior to construction We Energies will construct a new overhead electric line beginning at an existing pole at Station 20CN+73, 20'RT running easterly to a new pole at Station 24CN+42, 45'RT and turning southeasterly to a new pole at Station 25CN+05, 91'RT. They will also construct a new overhead line from a new pole at Station 24CN+42, 45'RT running northeasterly and crossing County Line Road to a new pole at Station 25CN+08, 67'LT.
    - The existing overhead line and poles between Station 20CN+73, 20'RT and Station 24CN+94, 40'RT will be removed.
- An existing overhead electric service line beginning at a pole at Station 24CN+94, 40'RT and running northwesterly to a light pole at Station 25CN+63, 38'LT. Prior to construction We Energies will remove the light pole and overhead line.
- An existing overhead electric line beginning beyond the southerly project limits running northwesterly to an existing pole at 24CN+94, 40'RT and turning northeasterly crossing County Line Road to a pole at Station 25CN+13, 98' LT and continuing beyond the project limits.
    - Prior to construction We Energies will transfer the existing wires from a new pole at Station 25CN+05, 91'RT running northerly crossing County Line Road to a new pole at Station 25CN+08, 67'LT.
    - The existing overhead line and pole Station 24CN+94, 40'RT will be removed.
- An existing underground electric line beginning at Station 30CN+75, 59'LT and running easterly along the north side of County Line Road to Station 31CN+80, 40'LT and turning northerly to beyond the project limits. This line will remain in place without adjustment.
- An existing underground electric line beginning at Station 30CN+60, 35'RT and running easterly along the south side of County Line Road to Station 31CN+52, 30'RT and turning northerly crossing County Line Road to Station 31CN+54, 43'LT. This line will be discontinued in place.

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

- An existing underground low-pressure gas line beginning beyond the southerly project limits running northerly along the west side of Pheasant Lane and crossing County Line Road to Station 22CN+19, 50'LT and turning easterly to Station 25CN+12, 50'LT where it turns northeasterly to beyond the project limits.
    - Prior to construction We Energies will construct a new underground gas line beginning at a tee connection into the existing main at Station 22CN+17, 52'RT and running westerly to Station 22CN+12, 57'RT where it turns northerly crossing County Line Road to Station 22CN+12, 28'LT. From there it turns easterly to Station 25CN+15, 38'LT where it turns northerly connecting into the existing main at Station 25CN+12, 50'LT.
    - The existing line between Station 22CN+17, 52'RT and Station 25CN+12, 50'LT will be discontinued in place.
- An existing gas service line beginning a tee at Station 22CN+19, 47'RT and running easterly to Station 24CN+09, 49'RT.
    - Prior to construction We Energies will construct a new underground gas service line beginning at 24CN+09, 49'RT and running northerly crossing County Line Road and teeing into the new gas main at Station 24CN+09, 38'LT.
    - The existing service line between Station 22CN+19, 47'RT and Station 24CN+09, 49'RT will be discontinued in place.

- An existing underground high-pressure gas line beginning beyond the southerly project limits running northerly along the IH 43 southbound on-ramp and crossing County Line Road to Station 25CN+70, 58'LT where it turns northwesterly to Station 25CN+29, 104'LT and then turns northerly to beyond the project limits. This line will remain in place without adjustment.
- An existing underground high-pressure gas line beginning beyond the westerly project limits running northerly along a line 15' northerly of and parallel to the existing centerline of County Line Road and teeing into the existing high-pressure gas main running north-south at Station25CN+70, 15'LT. This line will remain in place without adjustment.
- An existing underground low-pressure gas line beginning at Station 30CN+89, 71'LT and running southeasterly to Station 32CN+87, 43'LT and to beyond the easterly project limits. This line will remain in place without adjustment.
- An existing gas service line beginning a tee at Station 31CN+66, 47'LT and running southerly crossing County Line Road to beyond the project limits. This service line will remain in place without adjustment.

WisDOT has existing RWIS weather information facilities within the project limits. Prior to construction, WisDOT's RWIS contractor will remove the weather station tower located at Station 1310+76, 119'LT. The underground conduit leading from the tower to the sensors located at Station 1310+59, 38'LT and 1310+59, 50'LT in the IH 43 southbound pavement, as well as the sensors and a processor, will be discontinued in place. Contact the WisDOT RWIS Program Manager at (608) 266-5004 30 days prior to the start of work and upon completion of paving.

3. **Katherine Drive**

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

- An existing underground communication line beginning beyond the southerly project limits In Port Washington Road running northerly to Station 17KTN+31, 8'RT where it turns northeasterly to beyond the project limits to an existing manhole in Zedler Lane.
    - Prior to construction AT&T Wisconsin will construct a new underground communication line beginning beyond the southerly project limits In Port Washington Road running northerly along a line 5' easterly of and parallel to the proposed easterly sidewalk of Katherine Drive to Station 19KTN+66, 32'RT where it runs northeasterly to beyond the project limits to an existing manhole in Zedler Lane.
    - The existing communication line between Port Washington Road and Zedler Lane will be discontinued in place.

Mequon Municipal Water Utility has existing water main facilities in the following locations:

- An existing underground water main beginning beyond the southerly project limits In Port Washington Road running northeasterly to Station 11KTN+74, 37'LT where it turns northerly to beyond the project limits in Zedler Lane.
    - Prior to construction Mequon Municipal Water Utility will construct a new underground water main beginning at a elbow connection into the existing main at Station 12KTN+43, 39'LT and running northwesterly to Station 12KTN+56, 51'LT where it runs northerly to Station 17KTN+04, 37'LT. From there it turns northeasterly to Station 17KTN+11, 31'LT connecting into the existing main.
    - The existing main between Station 12KTN+43, 39'LT and Station 17KTN+11, 31'LT will be discontinued in place.

Spectrum has existing overhead and underground communications facilities in the following locations:

- An existing overhead communications line on We Energies poles beginning at a pole at Station 13KTN+46, 107'LT and running northerly to beyond the project limits to an existing pole in Zedler Lane at Station 1337+83, 128'RT.
    - The existing overhead communication line between Station 13KTN+46, 107'LT and Station 1337+83, 128'RT will be removed.
- An existing pair of underground communication lines beginning at a We Energies' pole at Station 11KTN+36, 72'LT and running southeasterly across Katherine Drive to a pedestal at Station 10KTN+83, 21'RT where it turns easterly to beyond the project limits. These lines will be discontinued in place.
    - Prior to construction Spectrum will construct a new underground communication line in a joint trench with We Energies beginning at a new pedestal at Station 10KTN+45, 48'RT running northeasterly to Station 11KTN+00, 84'RT where it turns running northerly to Station 20KTN+06, 66'RT. From there it turns westerly crossing Katherine Drive to a new pole at Station 20KTN+09, 29'LT.

- An existing underground communication line beginning at a We Energies' pole in Zedler Lane at Station 1337+83, 128'RT and running northerly to beyond the project limits.
    - Prior to construction Spectrum will reconnect the existing line to a new We Energies' pole at Station 1337+73, 136'RT.

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

- An existing overhead electric service line beginning at a pole at Station 13KTN+46, 107'LT and running southwesterly to a light pole in Port Washington Road at Station 341+64, 71'LT. Prior to construction We Energies will remove the light pole and overhead line.
- An existing underground electric line beginning at a pole at Station 13KTN+46, 107'LT and running easterly across Katherine Drive to Station 12KTN+42, 4'RT where it turns southerly to Station 10KTN+88, 27'RT where it turns easterly to beyond the project limits. This line will be discontinued in place.
- An existing overhead electric line beginning at a pole at Station 12KTN+46, 107'LT and running northerly to beyond the project limits to an existing pole in Zedler Lane at Station 1337+83, 128'RT.
    - Prior to construction We Energies will construct a new underground electric line beginning at a new transformer at Station 10KTN+63, 58'RT running northeasterly to Station 11KTN+00, 84'RT where it turns running northerly to Station 20KTN+06, 66'RT. From there it turns westerly crossing Katherine Drive to a new pole at Station 20KTN+09, 29'LT.
    - Prior to construction We Energies will construct a new overhead electric line beginning at a new pole at Station 20KTN+09, 29'LT running northerly to a new pole at Station 1337+73, 136'RT and turning easterly to beyond the project limits.
    - The existing overhead line and poles between Station 13KTN+46, 107'LT and Station 1337+83, 128'RT will be removed.
- An existing underground electric line beginning at a pole at Station 18KTN+70, 52'LT and running easterly across Katherine Drive to Station 18KTN+70, 74'RT where it turns northerly to beyond the project limits in Zedler Lane. This line will be discontinued in place.
- An existing underground electric line beginning at Station 18KTN+70, 44'RT and running northerly to beyond the project limits in Zedler Lane. This line will be discontinued in place.

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

- An existing underground low-pressure gas line beginning beyond the southerly project limits running northwesterly Station 11KTN+22, 66'RT where it turns northerly to Station 13KTN+83, 45'RT and then turns westerly to Station 13KTN+83, 10'RT. From there it turns northerly to beyond the project limits teeing into an existing main in Zedler Lane.
    - Prior to construction We Energies will construct a new underground gas line beginning at a tee connection into the existing main at Station 13KTN+83, 18'RT and running northerly to beyond the project limits.
    - The existing line between Station 13KTN+83, 18'RT and the northerly project limits in Zedler Lane will be discontinued in place.

4. **Port Washington Slip Lane**

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

- An existing underground communication line beginning beyond the southerly project limits running northerly along a line 30' easterly of and parallel to the existing westerly right of way of Port Washington Slip Lane and continues on beyond the northerly project limits.
    - During construction and in conjunction with grading and paving operations, AT&T Wisconsin will adjust an existing manhole at Station 13PNSL+42, 26'LT to final pavement grade. The existing underground line will remain in place without adjustment.
- An existing underground communication line beginning at Station 11PNSL+93, 26'LT and running southeasterly and then southerly to beyond the project limits leading to the AT&T Wisconsin hut located at Station 11PNSL+30, 109'RT. This line will remain in place without adjustment.

Mequon Municipal Water Utility has existing water main facilities within Port Washington Slip Lane beginning beyond the southerly project limits running northerly to beyond the northerly project limits. Prior to construction Mequon Municipal Water Utility will relocate the existing hydrant at Station 11PNSL+00, 59'LT to a new location at Station 11PNSL+09, 67'LT. The existing main will remain in place without adjustment.

Spectrum has existing overhead communications facilities in the following locations:

- An existing overhead communications line on We Energies poles beginning beyond the southerly project limits running northerly along a line 2' easterly of and parallel to the existing westerly right of way of Port Washington Slip Lane and continues on beyond the northerly project limits.
    - Prior to construction Spectrum will transfer their overhead wires to the new We Energies at Station 353PWS+29, 46'LT.

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

- An existing overhead electric line beginning beyond the southerly project limits running northerly along a line 2' easterly of and parallel to the existing westerly right of way of Port Washington Slip Lane and continues on beyond the northerly project limits.
    - Prior to construction We Energies will construct a new slack span pole at Station 13PNSL+15, 77'LT to replace the existing guy anchor at Station 13PNSL+15, 36'LT which will be removed. The existing poles and overhead lines will remain in place without adjustment.
    - Prior to construction We Energies will construct a new slack span pole at Station 16PNSL+40, 61'LT to replace the existing guy anchor at Station 16PNSL+40, 22'LT which will be removed. The existing poles and overhead lines will remain in place without adjustment.
    - Prior to construction We Energies will construct a new pole at Station 353PWS+29, 46'LT to replace the existing pole at Station 353PWS+27, 42'LT which will be removed. The existing overhead lines running to the south, north, and east will be transferred over to the new pole.
- An existing underground electric line beginning at a pole Station 10PNSL+61, 56'LT and running southerly across Port Washington Slip Lane to beyond the project limits leading to the AT&T Wisconsin hut located at Station 11PNSL+30, 109'RT. This line will remain in place without adjustment.

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

- An existing underground low-pressure gas line beginning beyond the southerly project limits running northerly along a line 39' easterly of and parallel to the existing westerly right of way of Port Washington Slip Lane to Station 352PWS+55, 6'LT where it turns westerly to Station 352PWS+55, 41'LT where it turns northerly to Station 353PWS+20, 41'LT. From there it turns northwesterly to Station 353PWS+40, 57'LT where it turns easterly and continues on beyond the project limits.
    - Prior to construction We Energies will construct a new underground gas line beginning at a tee connection into the existing main at Station 11PNSL+20, 21'LT and running easterly to Station 11PNSL+20, 15'LT where it turns northerly to Station 14PNSL+22, 10'LT. From there it turns westerly to Station 14PNSL+22, 28'LT where it turns northerly connecting into the existing main at Station 352PWS+55, 25'LT.
    - The existing line between Station 11PNSL+20, 21'LT and Station 352PWS+55, 25'LT will be discontinued in place.
- An existing underground low-pressure gas line beginning beyond the westerly project limits running easterly along a line 2' northerly of and parallel to the existing southerly right of way of Fiesta Lane to Station 352PWS+55, 6'LT where it tees into the existing main at Station 10PNSL+63, 21'LT. This main will remain in place without adjustment.
- An existing underground high-pressure gas line beginning beyond the southerly project limits running northerly along a line 41' easterly of and parallel to the existing westerly right of way of Port Washington Slip Lane to Station 11PNSL+12, 16'LT where it turns northwesterly to Station 11PNSL+40, 49'LT and then turns northerly to a high pressure gas pit at Station 11PNSL+55, 49'LT and Station 11PNSL+71, 49'LT. From there it continues northerly to Station 11PNSL+85, 49'LT where it turns easterly and connects into the existing low-pressure gas main at Station 11PNSL+87, 20'LT. This main will remain in place without adjustment.

<u>Zedler Lane</u>

Spectrum has existing overhead communications facilities in the following locations:

- An existing overhead communications line on We Energies poles beginning beyond the westerly project limits running easterly along a line 19' southerly of and parallel to the existing centerline of Zedler Lane and crossing IH 43 to a pole at Station 1337+83, 128'RT.
    - Prior to construction Spectrum will construct a new overhead communication line on We Energies poles beginning at an existing pole at Station 1337+51, 122' LT running easterly and crossing IH 43 to a new pole at Station 1337+73, 136'RT and continuing to beyond the easterly project limits.
    - The existing overhead communication line between Station 1337+51, 122' LT and Station 1337+83, 128'RT will be removed.

We Energies – Electric has existing overhead electric facilities in the following locations:

- An existing overhead electric line beginning beyond the westerly project limits running easterly along a line 19' southerly of and parallel to the existing centerline of Zedler Lane and crossing IH 43 to a pole at Station 1337+83, 128'RT.
    - Prior to construction We Energies will construct a new overhead electric line beginning at an existing pole at Station 1337+51, 122' LT running easterly and crossing IH 43 to a new pole at Station 1337+73, 136'RT and continuing to beyond the easterly project limits.
    - The existing overhead line and poles between Station 1337+51, 122' LT and Station 1337+83, 128'RT will be removed.

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

- An existing underground gas line beginning beyond the westerly project limits running easterly along a line 17' northerly of and parallel to the existing centerline of Zedler Lane and crossing IH 43 and continuing to beyond the easterly project limits.
    - Prior to construction We Energies will construct a new underground gas line beginning beyond the westerly project limits running easterly along a line 35' northerly of and parallel to the existing centerline of Zedler Lane and crossing IH 43 and continuing to beyond the easterly project limits where it turns southerly connecting into the existing main. The existing line will be discontinued in place.

5. **Donges Bay Road**

Spectrum has existing overhead communications facilities in the following locations:

- An existing overhead communications line on We Energies poles beginning beyond the westerly project limits at a pole at Station 50+09, 22'LT running easterly and northeasterly to a pole at Station 55+23, 48'LT where it turns easterly crossing IH 43 to a pole at Station 61+10, 48'LT. From there it then runs southeasterly to a pole at 62+71, 30'LT where it turns easterly to beyond the easterly project limits.
    - Prior to construction Spectrum will construct a new overhead communication line on We Energies poles beginning at an existing pole at Station 50+09, 22'LT running northeasterly to a new pole at Station 55+50, 51'LT where it turns easterly crossing IH 43 to a new pole at Station 57+83, 58'LT. From there it turns and runs southeasterly tying into an existing pole at Station 62+71, 30'LT
    - The existing overhead communication line between Station 50+09, 22'LT and 62+71, 30'LT will be removed.

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

- An existing overhead electric line beginning beyond the westerly project limits at a pole at Station 50+09, 22'LT running easterly and northeasterly to a pole at Station 55+23, 48'LT where it turns easterly crossing IH 43 to a pole at Station 61+10, 48'LT. From there it then runs southeasterly to a pole at 62+71, 30'LT where it turns easterly to beyond the easterly project limits.
    - Prior to construction We Energies will construct a new overhead electric line beginning at an existing pole at Station 50+09, 22'LT running northeasterly to a new pole at Station 55+50, 51'LT where it turns easterly crossing IH 43 to a new pole at Station 57+83, 58'LT. From there it turns and runs southeasterly tying into an existing pole at Station 62+71, 30'LT
    - The existing overhead line and poles between Station 50+09, 22'LT and 62+71, 30'LT will be removed.
- An existing underground electric line beginning beyond the westerly project limits at a manhole at Station 49+62, 7'LT running easterly along the north side of Donges Bay Road to Station 54+19, 27'LT where it turns northerly and connects to and existing pole at Station 54+19, 41'LT.
    - Prior to construction We Energies will construct a new underground electric line splicing into the existing underground line at Station 51+25, 16'LT and running easterly to Station 53+92, 36'LT where it turns northerly and connects to a new pole at Station 53+92, 43'LT.
    - The existing underground line between Station 51+25, 16'LT and Station 54+19, 41'LT will be discontinued in place.
- An existing overhead electric service line beginning at an existing pole at Station 51+40, 22'LT running southerly and crossing Donges Bay Road to a building beyond the southern limits. Prior to construction We Energies will transfer this overhead service to a new pole at Station 51+60, 30' LT.
- An existing overhead electric service line beginning at an existing pole at Station 55+23, 48'LT running southwesterly and crossing Donges Bay Road to an existing tornado siren at Station 54+60, 39'RT. Prior to construction We Energies will transfer this overhead service to a new pole at Station 54+60, 46' LT.

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

- An existing underground gas line beginning beyond the westerly project limits running easterly along a line 15' southerly of and parallel to the existing Donges Bay Road centerline to Station 54+95, 15'RT where it turns southeasterly to Station 55+18, 46'RT. From there it turns easterly crossing IH 43 to Station 57+75, 46'RT where it turns northeasterly to Station 58+10, 15'RT where it turns easterly and continues to beyond the easterly project limits.
    - Prior to construction We Energies will construct a new underground gas line beginning beyond the westerly project limits teeing into the existing main at Station 49+85, 15'RT and running northerly to Station 49+85, 30'LT where it turns easterly to Station 52+49, 30'LT. From there it turns northerly to Station 52+49, 48'LT where it turns easterly crossing IH 43 to Station 60+92, 48'LT. From there it turns southerly to Station 60+92, 27'RT where it turns easterly to Station 61+12 ,27'RT and then turns northerly connecting into the existing main at Station 61+12, 15'RT.
    - The existing line between Station 49+85, 15'RT and Station 61+12, 15'RT will be discontinued in place.

6. **IH 43 Corridor**

CenturyLink Communications has existing underground fiber optic communications facilities within the project limits running northerly along a line easterly of and parallel to the existing westerly IH 43 right of way for the entire length of the project and continuing to beyond the northerly project limits.

- There are multiple locations where CenturyLink's existing facilities are in conflict with the grading for the project. Relocation for grading conflicts will include a directional bore to intercept the existing fiber on each side of the identified conflicts. Handhole structures with marker posts will be set at those intercept points. Directional bore will be a minimum 48" below proposed grade.
    - Prior to construction CenturyLink will relocate their facilities at the following locations: Station 1290+50 to 1293+50, Station 1308+50 to 1309+50, Station 1315+50 to 1319+00, and Station 1340+00 to 1342+00.
- There are multiple locations where CenturyLink's existing facilities are in conflict with the proposed storm sewer for the project. Relocation for storm sewer conflicts will include exposing and adjusting their existing line during construction at the point of conflict.
    - During construction CenturyLink will raise or lower their facilities as needed at the following locations: Station 1301CN+00, Station 1333+00, Station1331+00, and Station 1336+00 to 1342+00.

The following utilities will require adjustments during construction:

Bayside, Village of – Sanitary has existing underground sanitary facilities within the project limits. Adjust and reconstruct manholes as shown in the plans and bid items.

Mequon, City of – Lighting has existing streetlight poles and associated underground electric lighting facilities within the project limits. Construct, reconstruct, relocate, remove, discontinue and leave in place portions of lighting facilities as shown in the plans and bid items.

Mequon, City of – Sanitary has existing underground sanitary facilities within the project limits. Adjust and reconstruct manholes as shown in the plans and bid items.

Mequon Municipal Water Utility has existing underground water facilities within the project limits. Construct, reconstruct, relocate, remove, discontinue and leave in place portions of water facilities as shown in the plans and bid items.

Milwaukee Metropolitan Sewerage District has existing underground sanitary sewer facilities within the project limits. Milwaukee Metropolitan Sewerage District will adjust manholes on Port Washington Road during construction at Station 303PNCN+04, 32'RT and Station 305PNCN+88, 28'RT.

River Hills, Village of – Sanitary has existing underground sanitary facilities within the project limits. Adjust manholes as shown in the plans and bid items.

WisDOT has existing light poles and associated underground electric lighting facilities within the project limits. Construct, reconstruct, relocate, remove, discontinue and leave in place portions of lighting facilities as shown in the plans and bid items.

WisDOT has existing traffic signal facilities within the project limits. Construct, reconstruct, relocate, remove, discontinue and leave in place portions of traffic signal facilities as shown in the plans and bid items.

WisDOT has existing communications facilities throughout the project limits. Construct, reconstruct, relocate, remove, discontinue and leave in place portions of communication facilities as shown in the plans and bid items.

9. Other Contracts.

Coordinate your work in accordance to standard spec 105.5.

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

Coordinate activities, detours, work zone traffic control, roadway and lane closures, and other work items as required with other contracts.

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

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

2021 -2022

I-43 N-S Freeway Mainline Construction:

- ID 1229-04-70, Silver Spring Dr to STH 60, Work Zone Prep Contract

2022 -2023

I-43 N-S Freeway Mainline Construction:

- ID 1229-04-76, I-43 Highland Road to STH 60, Ozaukee County
- ID 1228-22-71, Capitol Drive to 2100 Feet N of Hampton Avenue, Milwaukee County
- ID 2270-04-70, STH 57, Ozaukee County

2023 -2024

I-43 N-S Freeway Mainline Construction:

- ID 1229-04-72, Union Specific RR Bridge B-40-921, Milwaukee County
- ID 1229-04-73, Bender Road to W Brown Deer Road, Milwaukee County
- ID 1228-22-71, Capitol Drive to 2100 Feet N of Hampton Avenue, Milwaukee County
- ID 1228-22-70, Brown Street to Capitol Drive, Milwaukee County

N Port Washington Road:

- ID 1229-04-71, Bender Road to Daphne Road, Milwaukee County

10. Work by Others.

On Port Washington Road, the City of Mequon will perform the following work:

- Provide and install Water Main

11. Available Documents

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

- Design Study Report
- Environmental Document
- Traffic Management Plan

These documents are available from Steve Hoff at 141 NW Barstow Street, Waukesha, WI 53187 (262) 548-6718.

Reproduction costs will be applied to all copies requested.

sef-102-005 (20170310)

12. Geotechnical Investigation Information.

Replace standard spec 102.5(3) 2 with the following:

Available information relative to subsurface exploration, borings, soundings, water levels, elevations, or profiles are available for review at the department's Regions office. Contact Steve Hoff at 141 NW Barstow Street, Waukesha, WI 53187 (262) 548-6718.

Geotechnical Report for IH 43 - Silver Spring to CTH Q

Geotechnical Report for IH 43 - Milwaukee County Line to STH 60

Additional geotechnical information is available from studies and analyses that have been performed by HNTB for the department for other aspects of this project. Review the available information to determine if it is of use. The use or not of the geotechnical information does not relieve performing the work conforming to the plans and specifications.

sef-102-010 (20170310)

13. Contract Award and Execution.

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

103.9 Bid Escrow Documentation

(1) The department will require the lowest responsible bidder to submit documentation to be placed in escrow at a document storage facility. Bid Escrow Documentation (BED) consists of writings, working papers, computer printouts, charts, and data compilations that contain or reflect information, data, calculations, or assumptions used by the bidder to determine the proposal submitted. If the apparent low bid is withdrawn or rejected, the second low bidder will provide the required documents as specified in this special provision within 72 hours of written notification by the department.

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

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

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

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

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

(7) The low bidder shall present authentic copies of their BED at the department's office by November 12, 2021 (subject to change) 72 hours/3 days after let, at 10:00 AM.

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

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

(10) The department's examination of the BED will not include review of, nor will it constitute approval of, proposed construction methods, estimating assumptions, or interpretation of the contract. The examination will not alter any conditions or terms of the contract. The department will determine if the

BED complies with this special provision within 4 hours after the time the BED is submitted. If the BED does not meet the requirements of this special provision, the department may reject the bid.

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

(12) If the apparent low bid is withdrawn or rejected, the designated representative of the second low bidder and the department will examine and inventory the bid documentation of the second low bidder and their subcontractors in the manner specified in this section, then seal and deposit in escrow. If a subcontractor with a subcontract exceeding $500,000 is replaced, the contractor shall submit new BED for examination and escrow before the engineer will authorize the substitution.

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

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

(15) Submit a copy of the affidavit in this special provision, signed under oath before a Notary Public by a representative of the bidder authorized to execute proposals. Department representatives will sign the affidavit after reviewing the BED.

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

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

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

BID ESCROW DOCUMENTATION CERTIFICATION

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

BIDDER

_____
(Name of Bidder)

By: _____
(Signature*)

Title _____

Date _____

WITNESS

_____
(Name of Witness)

By: _____
(Signature*)

Date: _____

WISCONSIN DOT

_____
(Name of Department Representative)

By: _____
(Signature*)

Title _____

WISCONSIN DOT

_____
(Name of Department Representative)

By: _____
(Signature*)

Title:_____

Date _____ Date: _____

(END OF BID ESCROW DOCUMENTS)

103.10 Mobilization Workshops

103.10.1 Workshop Schedule

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

1. Project Kickoff and Initial Work Plan
2. Cost Reduction Incentives
3. Utility Coordination
4. Submittals
5. CPM Scheduling
6. Leadership Partnering (Initial Session)
7. Secant and Tangent Pile Drilled Shaft Construction
8. Work Force Opportunities
9. Incident Crisis Communications Plan
10. Notice to Proceed

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

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

103.10.2 Workshops

103.10.2.1 Project Kickoff and Initial Work Plan

103.10.2.1.1 General

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

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

103.10.2.1.2 Project Questionnaire

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

General Information

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

Provide the following information about the company:

Firm Name

Address

Telephone and facsimile numbers; e-mail address

Contracting Specialties

Years performing work in contracting specialties

Geographic areas served

Total Management Employees and years of service

Project Managers

General Superintendents

Craft Superintendents

Engineers

Estimators

CPM Schedulers

Construction Engineering

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

Provide (if applicable) your third-party construction engineering firms.

Provide plan for Construction surveying

Subcontractors

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

Permanent Material Suppliers

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

Quality Control (where applicable)

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

Provide/attach a copy of your Construction Quality Control Manager's resume indicating the manager's experience in similar major construction projects. The resume shall include similar projects with references. (Note: references are only for verification of work scope performed).

List the major elements and Table of Contents of your Construction Quality Management Program (QMP).

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

Organization Chart

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

Work Rules

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

Maintenance of Traffic

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

Include an outline of your approach to the maintenance of traffic and how you shall stage the construction to meet the substantial completion schedule including planned locations for local street and freeway access into and out of the work zones for each stage of construction.

Attach a copy of your Preliminary Schedule indicating your approach to achieving the substantial completion schedule.

Construction

Provide the approach (type of equipment, number of crews, and where required ground support systems) for the following activities.

1. Retaining wall construction by type of work
2. Bridge demolition
3. Roadway structural section
4. Roadway excavation
5. Office and yard facilities

103.10.2.2 Cost Reduction Incentives

(1) The Cost Reduction workshop will identify value enhancing opportunities and consider modifications to the plans and specifications that will reduce either the total cost, time of construction, or traffic congestion. These modifications shall not impair the essential functions or characteristics of the project. These include:

Service life

Economy of operation

Ease of maintenance

Benefits to the traveling public

Desired appearance

Design and safety standards

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

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

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

103.10.2.3 Utility Coordination

(1) The Utility Coordination Workshop will define the scope and schedule of utility relocation work and the corresponding roles and responsibilities of the project team.

1. At a minimum, the following key personnel will attend the Utility Coordination Meeting.
    1.1. Department's Utility Coordinator.
    1.2. Contractor's Utility Coordinator.
    1.3. Designer Team's Utility Coordinator.
    1.4. Key Utility Company Representative(s)
2. At a minimum, the Utility Coordination Meeting will include a review of the following:
    2.1. Summary of all required utility relocations on the project.
    2.2. Special provisions addressing utility work.
    2.3. Sharing of contact information.
    2.4. Scheduling of work for utility relocation including critical milestones and staging for the work.

103.10.2.4 Submittals

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

1. Review the project special provisions.
2. Categorize submittals into functional areas including:
    2.1 MSE Retaining Walls
    2.2 Temporary Shoring
    2.3 Falsework and Formwork
    2.4 Girder Shop Drawings
    2.5 Steel Transportation, Delivery and Erection
    2.6 Structure Demolition Plans
    2.7 Pile Hammers and High Capacity Piling
    2.8 Concrete/ Asphalt
    2.9 Materials
    2.10 ITS / Lighting
    2.11 Traffic Signals
    2.12 Sanitary Sewer and Water
    2.13 Permits
3. Develop a schedule for submittals.

103.10.2.5 CPM Schedule

See specification Baseline CPM Progress Schedule.

103.10.2.6 Leadership Partnering Meetings Monthly

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

- FHWA
- Key project personnel of the contractor’s principal subcontractors and suppliers
- Local government representatives
- Environmental regulators
- Emergency service personnel

- Utility companies
- Impacted business and property owners
- Other stakeholders

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

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

All mobilization workshop costs are incidental to the contract work.

sef-108-030 (20171004)

103.10.2.7 Secant and Tangent Pile Drilled Shaft Construction

(1) The Secant and Tangent Pile Drilled Shaft Construction workshop will serve as a pre-construction kickoff meeting specifically for the secant and tangent pile drilled shaft work and occur before all secant and tangent pile work being performed on the job, including the installation of the secant pile trial wall panel. The workshop must be attended by representatives of the prime contractor and key members of the prequalified drilling shaft subcontractor performing the secant and tangent pile installation. At minimum, key members of the drilling subcontractor includes on-site principal in charge, on-site construction supervisor and crew foremen.

(2) The workshop agenda will include review and discussion of the drilling subcontractors submitted drilled shaft installation plan; scheduling and coordination of the secant and tangent pile drilled shaft installation work; mobilization and preparation; and subsequent work operations associated with the construction.

103.10.2.8 Storm Sewer Tunneling

(1) The Storm Sewer Tunneling workshop will focus on the installation plan, access, material storage, scheduling, dewatering, shoring, maintaining existing drainage, erosion control, and subsequent work operations associated with the construction.

103.10.2.9 Work Force Opportunities

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

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

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

sef-108-036 (20180627)

103.10.2.10 Incident Crisis Communications Plan

(1) The Incident Crisis Communications Plan workshop will include a "dry run" of the Crisis Communication Plan to coordinate the response to an incident within the work zone or on the freeway by the Contractor, Police, Fire, EMS and other responders. Ensure that representatives of subcontractors also participate in this meeting if requested by the Project engineer

103.10.2.11 Notice to Proceed

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

sef-103-005 (20180104)

14. Contractor Notification.

Replace standard spec 104.2.2.2(2) with the following:

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

Replace standard specs 104.3.2 and 104.3.3 with the following:

104.3.2 (Vacant)

104.3.3 Contractor Initial Written Notice

(1) If required by 104.2, or if the contractor believes that the department's action, the department's lack of action, or some other situation results in or necessitates a contract revision, promptly provide a written notice to the engineer. At a minimum, provide the following:

1. A written description of the nature of the issue.
2. The time and date of discovering the problem or issue.
3. If appropriate, the location of the issue.

(2) Provide the additional information specified in 104.3.5 as early as possible to assist the engineer in the timely resolution of an identified issue. The engineer will not require, in subsequent submissions, duplication of information already provided.

sef-104-005 (20141211)

15. Eliminated Work.

Replace standard spec 104.2.2.5 with the following:

104.2.2.5 Change Orders for Eliminated Work

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

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

Replace standard spec 109.5 with the following:

109.5 Eliminated Work

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

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

1. Preparation expenses defined as follows:

- If preparation for the eliminated work has no value to other contract work, the department will reimburse the contractor in full for that preparation.
- If preparation for the eliminated work is distributed over other contract work, the department will prorate reimbursement based on the value of the eliminated work compared to the total value of associated contract work.

2. All restocking and cancellation charges.
3. A markup for applicable overhead and other indirect costs paid as 7 percent of the contract price of the work eliminated, except for the items in noted in 109.5*(2)4*. The project engineer

will issue a contract change order based on the net value of the eliminated work and any replacement work included in the change order.

4. If the following bid items are not used at all for the prosecution of the work, the Department will eliminate them with a WAF and a contract change modification. A markup for applicable overhead and other indirect costs will be paid as 2 percent of the contract price of the bid item for the work eliminated:

   a. 390.0203 Base Patching Asphalt

   b. 450.1100.S Asphaltic Mixture for Extreme Conditions

   c. 495.1000.S Cold Patch

   d. 501.1000.S Ice Hot Weather Concreting

   e. 624.0100 Water

   f. 627.0200 Mulching

   g. 629.1910 Mobilization Emergency Erosion Control

   h. 629.1905 Mobilization Erosion Control

   i. 630.0500 Seed Water

   j. SPV.0060.0120 Mobilizations Emergency Pavement Repair

   k. SPV.0060.0940 Emergency Response to Traffic Incident Involving Concrete Barrier Temporary

   l. SPV.0060.0945 Emergency Response to Traffic Incident Involving Crash Cushions

   m. SPV.0195.0001 HMA Longitudinal Joint Repair

   n. SPV.0195.0002 HMA Transverse Joint Repair

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

16. Environmental Protection, Aquatic Exotic Species Control.

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

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

Ensure that all equipment that has been in contact with waters of the state, or with infested or potentially infested waters, has been decontaminated for aquatic plant materials and zebra mussels before being used in other waters of the state. Before using equipment on this project, thoroughly disinfect all equipment that has come into contact with potentially infested waters. Guidelines from the Wisconsin Department of Natural Resources for disinfection are available at:

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

Use the following inspection and removal procedures:

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

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

Complete the inspection and removal procedure before equipment is brought to the project site and before the equipment leaves the project site.

stp-107-055 (20130615)

17. Municipality Acceptance of Water Main Construction.

Both the department and the City of Mequon personnel will inspect the construction of water main items under this contract. Final acceptance of the water main construction will be by the City of Mequon.

~~stp-105-001 (20140630)~~

18. Municipality Acceptance of Sanitary Sewer Construction.

Both the department and the City of Mequon personnel will inspect the construction of sanitary sewer items located in the City of Mequon under this contract. Final acceptance of the sanitary sewer construction will be by the City of Mequon.

Both the department and the Village of River Hills personnel will inspect the construction of sanitary sewer items located in the Village of River Hills under this contract. Final acceptance of the sanitary sewer construction will be by the Village of River Hills.

Both the department and the Village of Bayside personnel will inspect the construction of sanitary sewer items located in the Village of Bayside under this contract. Final acceptance of the sanitary sewer construction will be by the Village of Bayside.

19. Contractor Document Submittals.

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

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

The department will return one reviewed, accepted, or approved original to the contractor. Additional return originals can be requested. Submit an additional original for each additional return original requested.

Submit electronic copies in PDF format via email to accounts the engineer determines. If possible, create PDFs from original documents in their native format (e.g. Word, Excel, AutoCAD, etc.). Scan other documents to PDF format with a minimum resolution of 600 dpi.

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

sef-105-010 (20150619)

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

The department has obtained a U.S. Army Corps of Engineers Section 404 permit. Comply with the requirements of the permit in addition to requirements of the special provisions. A copy of the permit is available from the regional office by contacting Steve Hoff at (262) 548-6718.

stp-107-054 (20210708)

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

The department has obtained coverage through the Wisconsin Department of Natural Resources to discharge storm water associated with land disturbing construction activities of this contract under the Wisconsin Pollutant Discharge Elimination System General Construction Storm Water Discharge Permit (WPDES Permit No. WI-S066796-1). A certificate of permit coverage is available from the regional office by contacting Steve Hoff, 262-548-6718, steve.hoff@dot.wi.gov. Post the permit in a conspicuous place at the construction site.

22. Dust Control Implementation Plan.

A Description

This special provision describes developing, updating, and implementing a detailed Dust Control Implementation Plan (DCIP) for all land-disturbing construction activities and associated impacts both within the project site boundaries and outside the project site boundaries. Incorporate contract bid items that this article specifies into the DCIP.

B (Vacant)

C Construction

C.1 General

Control dust on the project as specified in standard spec 107.18. Minimize dust emissions resulting from land disturbing activities. Do not generate excessive air borne particulate matter (PM) or nuisance dust conditions. Control dust at all times during the contract.

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

C.2 DCIP Contents

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

Include all of the following:

1. A single contact person with overall responsibility for the DCIP development as well as surveillance and remediation of job related dust. Provide:
   - Name, firm, address, and working-hours phone number.
   - Non-working-hours phone number.
   - Email address.
2. A site map locating project features, the job site boundaries, all ingress and egress points, air intakes and other dust-sensitive areas, and all public and private paved surfaces within and adjacent to the job site. Show where specific land disturbing, dust generating activities will occur and, to the extent possible, where employing various dust control or prevention strategies.
3. A matrix, or plan, for each anticipated land disturbing, dust generating activity, showing the following:
   - Preventive measures that shall be employed.
   - The applicable contact person.
   - The contractor's timetable and surveillance measures used to determine when remediation is required.
   - The specific dust control and remediation measures that shall be employed. Identify the specific contract bid items that shall be used for payment. Indicate costs and practices that are incidental to the contract.
   - Both maintenance and cleanup schedules and procedures.
   - Excess and waste materials disposal strategy.
4. A description of monitoring and resolving off-site impacts.

C.3 Updating the DCIP

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

C.4 Dust Control Deficiencies

Coordinate with engineer to determine deadlines for resolving dust control deficiencies. Deficiencies include actions or lack of actions resulting in excessive dust, non-compliance with the contractor's DCIP or associated special provisions, and not properly maintaining equipment.

D Measurement

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

Measurement under the DCIP includes the contract bid items listed in this special provision:

624.0100	Water
628.7560	Tracking Pads
SPV.0075.0601	Pavement Cleanup Project 1229-04-74

The department will measure work completed under other existing contract bid items if approved as a part of the DCIP. The department will consider new bid items to the contract if proposed under the DCIP. The department will not measure work required under the DCIP that is not included in contract bid items.

E Payment

All costs associated with the development and updating of the DCIP are incidental to the contract. The department will pay separately for the work required to implement the actions approved in the DCIP under the contract bid items approved as a part of the DCIP. All other costs associated with work approved under the DCIP are incidental to the contract.

sef-107-005 (20170323)

23. Erosion Control.

Add the following to standard spec 107.20:

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

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

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

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

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

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

Do not allow excavation for; structures, utilities, grading, maintaining drainage that requires dewatering(mechanical pumping) of water containing sediments (sand, silt, and clay particles) to leave the worksite or discharge to a stormwater conveyance system without sediment removal treatment. Before each dewatering operation, submit to the department a separate ECIP amendment describing in words and pictorial format an appropriate BMP for sediment removal, conforming to WisDNR Storm

Water Construction Technical Standard, Code 1061, Dewatering. Include reasoning, location, and schedule duration proposed for each operation. Per Code 1061, include all selection criteria: site assessment, dewatering practice selection, calculations, plans, specifications, operations, maintenance, and location of proposed treated water discharge. Provide a stabilized discharge area. If directing discharge towards or into an inlet structure, provide additional inlet protection for back-up protection. Do not house any dewatering technique in a wetland or floodplain.

All dewatering, including treatment to remove suspended solids, not covered underbid items is incidental to the contract.

The project team may identify ‘sensitive’ areas in the field that require additional temporary stabilization to protect resources from being contaminated by sediment-laden water discharging from the worksite. Any ‘release’ of sediment-laden water from the work site that enters a wetland or waterway should be reported to the WDNR liaison within 24 hours.

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

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

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

Construction of structures over navigable waterways shall be completed as quickly as possible in order to minimize disruption. Construction shall minimize the removal of shoreline vegetation below the ordinary high water mark (OHWM) unless otherwise directed by the WDNR Transportation Liaison. Construction equipment should not operate on the bed of the stream or below the OHWM, except for that which is necessary for the placement of the structure. The contractor must provide a means of separating the live flow channel of the waterway from disturbed areas (cofferdam, turbidity barrier, etc.). Any plan for diverting the flow of a navigable waterway (listed under Fish Spawning provision) needs to be submitted, reviewed and approved by the project staff.

If erosion mat is used along stream banks, DNR recommends that biodegradable non-netted mat be used (e.g. Class I Type A Urban, Class I Type B Urban, or Class II Type C). Long-term netted mats may cause animals to become entrapped while moving in and out of the stream. Avoid the use of fine mesh matting that is tied or bonded at the mesh intersection such that the openings in the mesh are fixed in size.

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

24. Erosion Control Structures.

Within three calendar days after completing the excavation for a substructure unit, place riprap or other permanent erosion control items required by the contract or deemed necessary by the engineer around the unit at a minimum to a height equivalent to the calculated water elevation resulting from a storm that occurs on the average of once every two years (Q2) as shown on the plan, or as the engineer directs.

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

stp-107-070 (20191121)

25. Permanent Restoration.

Place topsoil and permanently restore fill slopes as the height of the fills progress. Show the timing of all topsoil and restoration mobilizations as part of proposed schedule in the ECIP.

Fill slopes less than 10 feet in height shall be topsoiled and permanently restored out to the slope intercept when the fill slope reaches the subgrade shoulder point.

Fill slopes greater than 10 feet in height shall be topsoiled and permanently restored out to the slope intercept as the fill slope reaches 10 feet in height. The remainder of the fill slope shall be topsoiled and permanently restored when the fill slope reaches the subgrade shoulder point.

26. Material and Equipment Staging

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

SER-107-011 (20181019)

27. Railroad Insurance and Coordination - Union Pacific Railroad Company

A. Description

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

A.1 Railroad Insurance Requirements

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

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

Also send a copy to the following: Joshua Lee, SE Region Railroad Coordinator, 141 N. Barstow Street, Waukesha, WI 53188; Telephone (262)548-8673; E-mail joshua.lee@dot.wi.gov

Include the following information on the insurance document:

- Project ID: 1229-04-74
- Work Performed: Traffic Control, Roadway resurface

#	Route Name	City/County	Crossing ID	RR Subdivision	RR Milepost
1	West Donges Bay Rd.	Mequon/Ozaukee	180113A	Shoreline	109.65
2	West Mequon Rd.	Mequon/Ozaukee	180114G	Shoreline	110.65

A.2 Train Operation

Approximately 2 through freight trains operate daily at up to 25 mph. There are no switching movements

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

Construction Contact

Chris T. Keckeisen, Manager Special Projects - Industry & Public Projects Engineering Department; 1400 Douglas, MS 0910, Omaha, NE, 68179; Telephone (402) 5445131; E-mail ctkeckei@up.com or Richard

Ellison, Project coordinator, 207 Powell Avenue, Labadie, MO, 63055; Telephone (847) 323-7197; E-mail richardellison@up.com for consultation on railroad requirements during construction.

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

Flagging Contact

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

Cable Locate Contact

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

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

A.4 Work by Railroad

The railroad will perform the work described in this section, except for work described in other special provisions, and will be accomplished without cost to the contractor. None

A.5 Temporary Grade Crossing

If a temporary grade crossing is desired, submit a written request to the railroad representative named in A.3 at least 40 days prior to the time needed. Approval is subject to the discretion of the railroad. The department has made no arrangements for a temporary grade crossing.

stp-107-026 (20210708)

28. Hauling Restrictions.

Replace standard spec 107.2 with the following:

Present to the department, five business days before proposed hauling, a proposed haul route plan detailing haul routes that are not part of the state trunk highway system. Include the months, days of the week, time of day, number of trucks, types of trucks and maximum loads of trucks anticipated to accomplish the project work in the haul route submittal.

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

At all times, conduct operations in a manner that will cause a minimum of disruption to traffic on existing roadways. Obtain all permits required that may be required for off peak and night time work, including hauling of materials. Cost of all permits are incidental to the project.

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

29. Maintaining Drainage.

Maintain drainage at and through worksite during construction conforming to standard specs 107.22, 204, 205 and 520.

Use existing storm sewers, existing culvert pipes, existing drainage channels, temporary culvert pipes, or temporary drainage channels to maintain existing surface and pipe drainage. Pumps may be required to drain the surface, pipe, and structure discharges during construction. Costs for furnishing, operating, and maintaining the pumps is considered incidental to the project.

Dewatering (Mechanical Pumping) for Bypass Water (sediment-free) Operations

If dewatering bypass operations are required from one pipe structure to another downstream pipe structure or from the upstream to downstream end of a culvert and the bypass flow is not transporting sediments (sand, silt, and clay particles) from a tributary work site area, bypass pumping operations will be allowed provided that the department has been made aware of and approves operation. When

pumping bypass flows, the discharge location will need to be stable and not produce erosion from the discharge velocity that would cause release of sediment downstream.

Dewatering (Mechanical Pumping) for treatment Water (sediment-laden) Operations

If dewatering operations require pumping of water containing sediments (sand, silt, and clay particles), the discharge will not be allowed to leave the work site or discharge to a storm water conveyance system without sediment removal treatment. Refer to article Erosion Control in these special provisions for additional requirements.

sef-107-016 (20170310)

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

Add the following to standard spec 107.1(2):

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

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

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

stp-107-115 (20150630)

31. Subletting the Contract.

Replace standard spec 108.1.1 (3) with the following:

If proposing to have a party other than a subcontractor perform work, notify the engineer and submit details of this arrangement in writing. The engineer will determine if that arrangement constitutes subcontracting. Submit copies of all other agreements between any parties regarding the performance of work under the contract with the Request to Sublet.

sef-108-035 (20171004)

32. Work Force Opportunities.

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

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

sef-108-036 (20180627)

33. Coordination with Businesses and Residents.

The contractor shall arrange and conduct meetings between the contractor, the department, affected residents, local officials and business people to discuss the project schedule of operations including vehicular and pedestrian access during construction operations. Meetings shall be held prior to the start of 2022 construction and prior to start of 2023 construction. The contractor shall arrange for a suitable location for meetings that provides reasonable accommodation for public involvement. The department will prepare and coordinate publication of the meeting notices and mailings for meetings. The contractor

shall schedule meetings with at least two weeks' prior notice to the engineer to allow for these notifications.

stp-108-060 (20141107)

34. Lane Rental Fee Assessment.

A General

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

The allowable lane closure times are shown in the Prosecution and Progress article.

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

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

B Lane Rental Fee Assessment

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

IH 43 Off Peak Lane Closure Extending into Weekday Peak Hours

- 2 lanes to 1 lane: $6,000 per lane, per direction of travel, per hour broken into 15 minute increments

IH 43 Off Peak Lane Closure Extending into Weekend Peak Hours

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

Local Road Off Peak Lane Closure Extending into Peak Hours

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

IH 43 Service Ramp

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

IH 43 Full Freeway Closure

- 4:30 AM to 5:30 AM: $1,500 per lane, per direction of travel, per hour broken into 15 minute increments
- After 5:30 AM: $6,000 per lane, per direction of travel, per hour broken into 15 minute increments

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

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

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

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

Lane Rental Fee Assessment will be in effect from the time of the Notice to Proceed until the department issues final acceptance. If interim completion time or contract time expires before the completion of

specified work in the contract, additional liquidated damages will be assessed as specified in standard spec 108.11 or as specified within this contract.

stp-108-070 (20161130)

35. Environmental Protection – Waste

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

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

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

36. Notice to Contractor – Existing Topographic Mapping

The topographic mapping shown in the plans may not represent current field conditions due to the Work Zone Prep project (1229-04-70) currently under construction. This project includes widening of IH-43 to accommodate traffic control shown in this plan set. These projects will be completed in advance of this project starting. Miscellaneous quantities shown in this plan take these widening projects into account.

37. Notice to Contractor – Existing Modular Block Wall on N. Port Washington Road

Grading operations will be performed adjacent to existing modular block wall from station 352‘PNCN’+54 to 353‘PNCN’+53. Special care should be used during all construction activities in this area so that the wall is not disturbed. Any damage incurred during construction shall be repaired at the contractor’s expense.

38. Notice to Contractor – Existing Lannon Stone Wall on Donges Bay Road

Modification of the existing lannon stone wall at station 51’DB’+25. Special care should be used during modification and grading construction activities. Any damage to the existing wall and landscaping outside of the existing R/W shall be repaired at the contractor’s expense.

39. Notice to Contractor – Personnel Identification Program.

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

Noncompliance with this contract provision may result in removal of contractor personnel from the project or suspension of work in accordance with Standard Specification 108.6.

40. Notice to Contractor – Media Relations.

a) The contractor shall not disseminate or publicize this Agreement, information relating to this Agreement, their work responsibilities, or generally comment about the entire project without prior written consent from one of the department’s designated Project Communications Leaders listed under Section (d).
b) The contractor shall refer all information requests or interview requests made by external parties, including media sources, to all of the department’s designated Project Communications Leaders listed under Section (d).
c) The contractor agrees to coordinate with the department as to the form, content and timing of any public announcement of this Agreement.
d) The Project Communications Leaders for the department shall be:

    i. The department’s project manager

    ii. Daniel Sellers
    141 NW Barstow Street
    P.O. Box 798
    Waukesha, WI 53188
    Phone: (262) 548-5902
    Email: daniel.sellers@dot.wi.gov

e) Noncompliance with this contract provision may result in removal of contractor personnel from the project or suspension of work in accordance with Wisconsin Department of Transportation standard spec 108.6 applicable under the contract.
f) Notwithstanding anything to the contrary contained herein, no provision of this Agreement shall be interpreted to impede the contractor, or any individual, from reporting possible violations of state or federal law to any governmental agency or entity, or from making other disclosures under the whistleblower provisions of state or federal law. The contractor does not need the prior authorization of the department to make any such reports or disclosures and the contractor shall not be required to notify the department that such reports or disclosures have been made.

41. Notice to Contractor – Safety.

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

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

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

42. Notice to Contractor – Road Weather Information System (RWIS) Coordination.

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

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

43. Notice to Contractor – Milwaukee County Transit System.

The Milwaukee County Transit System (MCTS) operates the 143 bus route within the construction limits. Invite MCTS to all coordination meetings between the contractor, the department, local officials and business people to discuss the project schedule of operations including vehicular and pedestrian access during construction operations.

Notify MCTS at least ten (10) business days prior to beginning work on Port Washington Road.

The MCTS contacts are:

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

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

~~SER-107-004 (20180413)~~

44. Notice to Contractor – Ozaukee County Transit System.

The Ozaukee County Transit System operates the I-43 bus route within the construction limits.Invite Ozaukee County Transit to all coordination meetings between the contractor, the department, local officials and business people to discuss the project schedule of operations including vehicular and pedestrian accessduring construction operations. The Ozaukee County Transit contacts are:

Jon Edgren

Ozaukee County Road Facilities

410 South Spring Street

Port Washington, WI 53074

Phone: (262) 238-8335

email: jedgren@co.ozaukee.wi.us

~~SER-107-004 (20180413)~~

45. Notice to Contractor – Maintenance of ERUV Boundary.

An Eruv is a 'symbolic wall' for the Jewish community that is an uninterrupted boundary comprised mostly of fences and utility lines. There are three Eruv's within the project limits. They include the Glendale Eruv, the Bayside Eruv and the Mequon Eruv. The Eruv's are generally described as follows.

The Bayside Eruv runs west from Port Washington Road on the north side of Green Tree Road to IH 43 using We Energies overhead facilities. The Eruv boundary then runs north to Good Hope Road along the east side of IH 43 using the access control fence, crossing Good Hope Road on We Energies facilities then back to the east side of IH 43 where the Eruv continues on the access control fence to Brown Deer Road. The Eruv continues north across Brown Deer Road on overhead We Energies facilities and continues north on the access control fence on the east side of IH 43 to We Energies facilities along the south side of W. Fairy Chasm Road.

Ten days prior to removal of any fences, poles, wires, etc. that comprise the Eruv boundary, contact:

Rabbi Cheski Edelman

rabbicheski@chabadwi.org

Cell: (414) 439-5041

The Mequon Eruv boundary extends along IH 43 from the north side of Brown Deer Road to County Line Road. The Eruv begins on the west side of IH 43 on We Energies facilities at Brown Deer Road and extends north along the west IH 43 access control fence to County Line Road. The boundary crosses County Line Road on We Energies overhead facilities and continues north on We Energies facilities along Port Washington Lane.

Ten days prior to removal of any fences, poles, wires, etc. that comprise the Eruv boundary, contact:

Rabbi Moshe Rapoport

moshe@chabadmequon.org

Continuity of the Bayside and Mequon Eruv's must be maintained during construction and is considered incidental to the contract.

46. Traffic Control.

Supplement 643.3.1 of the standard specifications with the following:

Provide the Wisconsin State Patrol, Milwaukee County Highway Maintenance, Ozaukee County Highway Maintenance, and the project engineer a current telephone number with which the contractor or his representative can be contacted during non-working hours in the event a safety hazard develops.

Do not park or store equipment, contractor's and personal vehicles or construction materials within the clear zone or on any roadway carrying traffic during working and non-working hours except at locations and periods of time approved by the engineer.

Do not permit construction or personnel equipment or vehicles to directly cross the live traffic lanes of the freeway. Yield to all through traffic at all locations. Equip all vehicles or equipment operating in the live traffic lanes with a hazard identification beam (flashing yellow signal light) that is visible from 360 degrees. Operate the flashing yellow beam only when merging or exiting live traffic lanes or when parked or operating on shoulders, except when parked behind barrier wall. Do not park personal vehicles within the access control limits of the freeway. Do not cross live freeway traffic lanes of with equipment or vehicles.

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

Do not disturb, remove or obliterate any traffic control signs, advisory signs, sand barrel array, shoulder delineators or beam guard in place along the traveled roadways without the approval of the engineer.

Flagging operations shall follow section 104.6.1.(4) of the standard specs and chapter 6E of the WMUTCD.

Replace 643.3.1.(7) of the standard specs with the following:

Provide equipment, forces, and materials to promptly restore any traffic control devices or pavement markings damaged or disturbed within 2 hours of being contacted.

SER-643-001 (20170808)

47. Work Zone Ingress - Egress.

Any initial set-up and/or changes to the Work Zone Ingress – Egress construction detail in the plan or location(s) should be submitted a minimum of 10 working days before use and are subject to approval by the engineer and the Construction Program Work Zone, (414) 640-1148.

ser-643-005 (20180131)

48. Traffic Meetings and Traffic Control Scheduling.

Every Wednesday by 10:00 AM, submit a detailed proposed 2-week look-ahead traffic closure schedule to the engineer. Type the detailed proposed 2-week look-ahead closure schedule into an excel spreadsheet provided by the engineer. Enter information such as closure dates, duration, work causing the closure and detours to be used. Also enter information such as ongoing long-term closures, emergency contacts and general 2-month look-ahead closure information into the excel spreadsheet.

Meet with the engineer between 11:00 - 11:30 AM on Wednesdays at the project field office to discuss and answer questions on the proposed schedule. Edit, delete and add closures to the detailed proposed 2-week look-ahead schedule, as directed by the engineer, so that proposed closures meet specification requirements. Other edits, deletions or additions unrelated to meeting specification requirements may also be agreed upon with the engineer during the 11:00 AM meeting.

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

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

sef-643-040 (20150319)

49. Public Involvement Meetings.

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

sef-999-040 (20160915)

50. Intelligent Transportation Systems (ITS) – Control of Materials.

Standard spec 106.2 – Supply Source and Quality

Add the following to standard spec 106.2:

The department will furnish a portion of equipment to be installed by the contractor. This department-furnished equipment includes the following:

Department-Furnished Items
Microwave Vehicle Detectors
72-Count Fiber Optic Cable
6-Count Fiber Optic Cable
Fiber Optic Termination Panels
Fiber Optic Splice Enclosures
CCTV Cameras
CCTV Camera Poles
Microwave Vehicle Detectors
Ethernet Switches
ITS Field Cabinets

Pick-up small department-furnished equipment, such as communications devices, cameras, and controllers, from the department's Statewide Traffic Operations Center (STOC), 433 W. St. Paul Ave., Milwaukee, WI 53203 at a mutually agreed upon time during normal state office hours. Contact the department's STOC at (414) 227-2166 to coordinate pick-up of equipment.

Large department-furnished equipment, such as camera poles will be delivered by the supplier to a contractor-controlled site within Milwaukee or Ozaukee County. Delivery will not necessarily be in a "just in time" manner. Store the equipment until field installation. Provide location details and a contact for delivery coordination upon receiving the contract's Notice to Proceed.

Transportation of the equipment between the electric shop and the field or interim location(s) shall be the responsibility of the contractor.

Standard spec 106.3 – Approval of Materials

Add the following to standard spec 106.3:

Design/Shop Drawings

Prior to the purchase and/or fabrication of any of the components listed herein, and for any non-catalog item shown on the Material and Equipment List specified above, and no more than 30 days after notice to proceed, submit five copies of design drawings and shop drawings, as required, to the department for review. The items and the drawings that represent them shall meet the requirements of the standard specifications.

Design drawing submissions shall consist of signed and certified designs, design drawings, calculations, and material specifications for required items.

Shop drawings will be required for, but not limited to the following:

1. Mounting assemblies for the vehicle speed and classification sensors, including their attachment to the structure.
2. Mounting LED warning signs to the sign structure.
3. Mounting detail for dynamic message signs.
4. Any contractor-designed structure or foundation.

The department will complete its review of the material within 30 days from the date of receipt of the submission, unless otherwise specified. The department will advise the contractor, in writing, as to the acceptability of the material submitted. The department may determine that if no exceptions were taken for the item, it is approved, and no further action is required by the contractor; or the item may be partially or totally rejected, in which case modify and/or amend the submittal as required by the department and resubmit the item within 14 days. At this time, the review and approval cycle described above will begin again.

670-005 (20150630)

51. Intelligent Transportation Systems – General Requirements.

A Description

A.1 General

This contract includes furnishing and installing elements for an Intelligent Transportation System (ITS) in or along the existing roadway as shown on the plans.

Unusual aspects of this project include:

1. The project includes working on cables and equipment that are carrying data between roadside equipment and the department's Statewide Traffic Operations Center (STOC). Interruption of this service is not expected to perform this work. If an interruption is determined necessary, it must be done on a weekend, and must be done in a way that minimizes communication outages for the existing equipment. Notify the department's STOC at least 48 hours in advance of the planned interruption.
2. The department will furnish some of the equipment to be installed. Make a reasonable effort to discover defects in that equipment prior to installing it.

A.2 Surge Protection

Equip every ungrounded conductor wire entering or leaving any equipment cabinet with a surge protector. For purposes of this section, multiple cabinets on a single pole or foundation are considered a single cabinet.

B Materials

B.1 General

Only furnish equipment and component parts for this work that are new and have high quality workmanship. All controls, indicators, and connectors shall be clearly and permanently labeled in a manner approved by the engineer. All equipment of each type shall be identical.

All electrical equipment shall conform to the standards and requirements of the Wisconsin Electrical Code, the National Electrical Manufacturers Association (NEMA), National Electric Safety Council (NESC), Underwriter's Laboratory Inc. (UL) or the Electronic Industries Association (EIA), when applicable. All materials and workmanship shall conform to the requirements of the National Electrical Code (NEC), Rural Electrification Administration (REA), Standards of the American Society for Testing and Materials (ASTM), American Association of State Highway and Transportation Officials (AASHTO), requirements of the plans these special provisions, the standard specifications, and to any other codes, standards, or ordinances that may apply. All system wiring, conduit, grounding hardware and circuit breakers shall be in conformance with the National Electrical Code. Whenever reference is made to any of the standards mentioned, the reference shall be considered to mean the code, ordinance, or standard that is in effect at the time of the bid advertisement.

B.2 Outdoor Equipment

All conductive connectors, pins (except pins connected by soldering), and socket contacts shall be gold plated. Acrylic conformal coating shall protect each circuit board side that has conductive traces. Except for integrated circuits containing custom firmware, all components shall be soldered to the printed circuit board.

To prevent galvanic corrosion, all connections between dissimilar metals shall incorporate a means of keeping moisture out of the connection. Where the connection need not conduct electricity, interpose a non-absorbing, inert material or washer between the dissimilar metals. Use nonconductive liners and washers to insulate fasteners from dissimilar metals. Where the connection must conduct electricity, use a conductive sealant between the dissimilar metals. Alternatively, use an insulating gasket and a bond wire connecting the two metal parts.

B.3 Custom Equipment

Equipment that is not part of the manufacturer's standard product line, or that is made or modified specifically for this project, shall conform to the following requirements:

Where practical, electronics shall be modular plug-in assemblies to facilitate maintenance. Such assemblies shall be keyed to prevent incorrect insertion of modules into sockets.

All components shall be available from multiple manufacturers as part of the manufacturers' standard product lines. All must be clearly labeled with the value, part number, tolerance, or other information sufficient to enable a technician to order an exact replacement part.

Lamps used for indicator purposes shall be light-emitting diodes.

The printed circuit boards shall be composed of "two-ounce" copper on 1/16-inch thick fiberglass epoxy or equivalent type construction. Holes that carry electrical connections from one side of the boards to the other shall be completely plated through. Multilayer printed circuit boards shall not be used. The name or reference number used for the board in the drawings and maintenance manuals supplied to the department shall be permanently affixed to each board.

All components shall be mounted so that the identifying markings are visible without moving or removing any part, if practical.

B.4 Environmental Conditions

Equipment shall continue to operate as specified under the following ranges of environmental conditions, except as noted in the specifications for individual pieces of equipment.

1. **Vibration and Shock:** Vehicle speed and classification sensors and any other equipment mounted atop poles or on structures shall not be impaired by the continuous vibration caused by winds (up to 90 mph with a 30 percent gust factor) and traffic.
2. **Duty Cycle:** Continuous
3. **Electromagnetic Radiation:** The equipment shall not be impaired by ambient electrical or magnetic fields, such as those caused by power lines, transformers, and motors. The equipment shall not radiate signals that adversely affect other equipment.
4. **Electrical Power:**
    a. **Operating power:** The equipment shall operate on 120-volts, 60-Hz, single-phase unless otherwise specified. It shall conform to its specified performance requirements when the input voltage varies from 89 to 135 volts and the frequency varies +3 Hz.
    b. **High frequency interference:** The equipment operation shall be unaffected by power supply voltage spikes of up to 150 volts in amplitude and 10 microseconds duration.
    c. **Line voltage transients:** The equipment operation shall be unaffected by voltage transients of plus or minus 20 percent of nominal line voltage for a maximum duration of 50 milliseconds. Equipment in the field shall meet the power service transient requirements of NEMA Standard TS-2 when connected to the surge protectors in the cabinets.
5. **Temperature and Humidity:**
    a. **Field equipment:** Equipment in the field shall meet the temperature and humidity requirements of NEMA Standard TS-2. Liquid crystal displays shall be undamaged by temperatures as high as 165 degrees F, and shall produce a usable display at temperatures up to 120 degrees F.
    b. **Equipment in Controlled Environments** shall operate normally at any combination of temperatures between 50 degrees F and 100 degrees F, and humidity's between 5 percent and 90 percent, non-condensing, and with a temperature gradient of 9 degrees F per hour.

B.5 Patch Cables and Wiring

All cables and wiring between devices installed in a single cabinet, or in separate cabinets sharing a single concrete base, will be considered incidental to the installation of the devices and no separate payment will be made for them. It is anticipated that this will include fiber optic patch cables between termination panels and Ethernet switches, 10 / 100 MBPS Ethernet cables, RS-232 cables between individual devices and terminal servers, and power cables between individual devices and power sources within the cabinets.

B.6 Surge Protection

Low-voltage signal pairs, including twisted pair communication cable(s) entering each cabinet shall be protected by two-stage, plug-in surge protectors and shall be installed on both ends of camera control cables. The protectors shall meet or exceed the following minimum requirements:

1. The protectors shall suppress a peak surge current of up to 10k amps.
2. The protectors shall have a response time less than one nanosecond.
3. The protector shall clamp the voltage between the two wires at a voltage that is no more than twice the peak signal voltage, and clamp the voltage between each wire and ground at 50 volts.
4. The first stage of protection shall be a three-element gas discharge tube, and the second stage shall consist of silicon clamping devices.
5. The protector shall also contain a resettable fuse (PTC) to protect against excessive current.
6. There shall be no more than two pairs per protector.
7. It shall be possible to replace the protector without using tools.

Cables carrying power to curve signs shall be protected at the cabinet by grounded metal oxide varistors of appropriate voltages. The varistors must be at least 0.8 inch in diameter.

C Construction

C.1 Thread Protection

Provide rust, corrosion, and anti-seize protection at all thread assemblies of metallic parts by coating (non-spray) the mating surfaces with an approved compound. Failure to use an approved compound will result in no payment for the items to which coating was to have been applied.

C.2 Cable Installation

When installing new cables into conduits containing existing cables, remove the existing cables and reinstall the existing cables simultaneously with the new cables. Take every precaution necessary to protect the existing cables. In the event of avoidable damage to the existing cables, replace all damaged cables, in-kind, at no additional expense to the department. When cables are pulled into conduit, use a cable pulling lubricant approved by the cable manufacturer. Submit documentation supporting manufacturer approval of the lubricant to the engineer.

C.3 Wiring

Every conductor, except a conductor contained entirely within a single piece of equipment, must terminate either in a connector or on a terminal block. Provide and install the connectors and terminal blocks where needed, without separate payment. Use approved splice kits instead of connectors and terminal blocks for underground power cable splices.

Permanently label and key connectors to preclude improper connection. Obtain prior engineer approval for the labeling method(s) prior to use.

Terminal blocks must be affixed to panels that permanently identify the block and what wire connects to each terminal. This may be accomplished by silk screening or by installing a laminated printed card under the terminal block, with the labels on portions of the card that extend beyond the block. Installation of terminal blocks by drilling holes in the exterior wall of the cabinet is not acceptable.

Use barriers to protect personnel from accidental contact with all dangerous voltages.

Do not install conductors carrying AC power in the same wiring harness as conductors carrying control or communication signals.

Arrange wiring, including fiber optic pigtails, so that any removable assembly can be removed without disturbing wiring that is not associated with the assembly being removed.

Communication and control cables may not be spliced underground, except where indicated on the plans.

Cables in the Statewide Traffic Operations Center or in communication hubs, which are not contained within a single cabinet, shall have at least 10 feet of slack.

C.4 System Operations

If the contractor's operations unexpectedly interrupt Intelligent Transportation Systems (ITS) service, notify the engineer immediately and restore service within 24 hours. Repair all damaged facilities to the condition existing before the interruption. If service is not restored within 24 hours, the department may restore service to any operating device and deduct restoration costs from payments due the contractor.

C.5 Surge Protection

Arrange the equipment and cabinet wiring to minimize the distance between each conductor's point of entry and its protector. Locate the protector as far as possible from electronic equipment. Ensure that all wiring between the surge protectors and the point of entry is free from sharp bends.

D Measurement

No separate measurement will be made for the work described in this article.

E Payment

No separate payment will be made for the work described in this article. All work described in this article shall be included under the ITS items in the contract.

670-010 (20100709)

52. Pavement Breaking Equipment.

Use only hydraulic pavement breaking equipment for breaking pavement within 300 ft. of any structure. Do not use guillotine, drop hammer, falling weight, gravity impact breakers or equivalent equipment. A multi-head hydraulic drop hammer is allowed unless a structure is within 50 feet of the roadway.

53. Storm Sewer.

Supplement standard spec 204.5.1 with the following:

QMP sampling, testing and documentation if applicable is incidental to removing storm sewer bid item and no separate payment will be made.

Supplement standard spec 608.2 with the following:

Two weeks prior to start of storm sewer construction, provide a shoring design and installation sequence for each location where shoring is to be used. Have a professional engineer, currently registered in the State of Wisconsin and knowledgeable of the specific site conditions and requirements, verify the adequacy of the design. Submit one electronic copy in portable document format of each shoring design, signed and sealed by the same professional engineer verifying the design, to the engineer for incorporation into the permanent project record.

Supplement standard spec 608.3.1 with the following:

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

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

Supplement standard spec 608.3.4 with the following:

Place rubber gasket joints over the spigot end or tongue of the entering pipe for all round storm sewer pipes horizontal and elliptical pipes with a rise less than or equal to 40-inches. Clean the gasket and the ends of the pipe from sand and gravel. If the gasket provided is neither factory lubricated nor self-lubricating, lubricate the outside of the gasket and the inside of the bell or groove of the last pipe with an engineer - approved vegetable lubricant immediately before making the joint. Place the spigot or tongue of the pipe being laid with the gasket in place into the bell or groove end of the previously laid pipe. Set pipe carefully to line and grade, and push or jack home. The engineer may order the use of ajack or "come-along" if deemed necessary to ensure that the joints are completely tight.

For horizontal elliptical pipe rise greater than 40-inches use mastic joint compound. Where factory lubricated rubber gasket joints are not available, clean the ends of the pipe from sand and gravel. Place engineer-approved mastic joint sealer on both the spigot and bell ends of the pipe being laid. Apply additional mastic around each joint exterior and wrap each joint with Geotextile Fabric Type DF laid flat meeting requirements of standard spec 645. Wrap each joint so that the Geotextile Fabric overlaps each joint a distance of approximately ½ of the pipe diameter.

Replace standard spec 608.5(2) with the following:

Payment for the Storm Sewer Pipe bid items is full compensation for providing all materials, including all special Y's, mitered sections, elbows and connections required; for all submittals; for excavating and wasting excess material, except rock excavation; for providing rubber gaskets; Lubrication of rubber gaskets; mastic joint sealer; for supporting utilities in storm sewer trench; for shoring design, providing a signed and sealed copy of the design; for installation, monitoring, and removal of shoring; for forming foundation; for laying pipe; for sealing joints and making connections to new or existing features, bedding material; for backfilling and granular backfill material; for QMP sampling, testing and documentation; for cleaning out; and absent the pertinent contract bid items, for restoring the work site.

54. Removing Old Culverts and Bridges

Add the following to standard spec 203.3.1:

203.3.1.1 Structure Removal Site Safety Plan

(1) Prepare a Structure Removal Site Safety Plan covering all structure removal work included in the contract. Maintain posted copies of the Structure Removal Site Safety Plan at the site in the project field office. Provide two copies of the Structure Removal Site Safety Plan to the engineer at least four weeks before beginning removal work.

203.3.1.2 Structure Removal Plans

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

Existing Structure	Structure Type	Feature On	Feature Under
B-40-338	2 span steel girder	County Line Road	IH 43
B-45-17	4 span steel girder	CTH W	IH 43
B-45-18	2 span concrete girder	Donges Bay Road	IH 43

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

Examine the existing structure plans and visit the site before preparing and submitting the structure removal plan(s). The contractor is responsible for the methods and sequence of demolition, including effects on the overall stability of each structure being removed. At a minimum, each removal plan shall include:

1. The name of the professional engineer, registered in the state of Wisconsin who will be on site and monitoring the removal of existing structures as required in this specification.
2. The name of the contractor's on-site-employee designated in responsible charge of all removal operations.
3. The removal method and sequence of removal for each individual structure, including the staging of bridge removals.
4. Analysis of the stability of the structure based on the methods and sequence of demolition proposed, to ensure that the structure is demolished in a safe and controlled manner. The

analysis computations shall be prepared, signed and sealed by a professional engineer registered in the State of Wisconsin.

5. Design and details of temporary supports, shoring or temporary bracing, if required to stabilize portions of partially remaining structures during the removal sequence or support partially remaining structures after staged removals. Include design computations and detail drawings for all temporary supports, shoring and bracing that indicate the exact placement of the temporary supports, shoring or bracing; verification of design loads; attachment details; and methods for the safe transfer of loads from existing structural elements to be removed to the temporary supports, shoring, or bracing. Temporary support, shoring, or bracing design computations and drawings details are to be prepared, signed and sealed by a professional engineer registered in the State of Wisconsin.

6. Design and details of temporary support foundations. Include in the foundation design the evaluation of expected foundation settlement and the effect that this will have on the structure being supported. Temporary support foundation design computations and drawing details are to be prepared, signed and sealed by a professional engineer registered in the State of Wisconsin.

7. Equipment type and locations of equipment on the structure(s) or adjacent roadways during the removal operations

8. Locations and type of work to be performed directly adjacent to traffic.

9. Details and locations of protective covers and other measures to ensure that people, property and improvements will not be endangered or damaged as a result of the removal operations. Include methods for protecting any pavement surfaces including shoulders, concrete barriers, and other highway features.

10. Methods of removal, hauling and disposal, including haul routes and disposal destination.

11. A schedule of anticipated roadway and lane closures to accommodate removal operations. Include the timing of individual lane or temporary roadway closures and the nature of removal operations that will be performed during the lane or roadway closures.

12. Acknowledgement that the contractor and removal design engineer responsible for preparing the removal plan have visited the site and reviewed the existing structure plans in preparing the removal plan.

Structure Pre-Removal Meetings

After submission of the Structure Removal Site Safety Plan and required Structure Removal Plan(s), schedule and conduct structure pre-removal meetings at a time agreed to by the engineer. Hold structure pre-removal meetings at least three working days before beginning structure removal activities. If the engineer agrees before, multiple structure removals can be combined and discussed at one structure pre-removal meeting. Otherwise, schedule and conduct a separate structure pre-removal meeting for each structure to be removed.

Supplement standard spec 203.3.2.1 with the following:

Perform structure removals conforming to the submitted Structure Removal Site Safety Plan and applicable Structure Removal Plan(s)

Supplement standard spec 203.5.1(2) with the following:

Payment includes preparation and submittal of a Structure Removal Site Safety Plan; preparation and submittal of Structure Removal Plan(s) and performing all structure removal work conforming to the submitted plans.

55. Removing Concrete Barrier.

Add the following to standard spec 204.3.2.2.1 as paragraph fourteen:

(14) Under the Removing Concrete Barrier bid item, remove barrier and footing, unless specified in the plans, at the locations the plans show. Removal includes all required sawing conforming to standard spec 690.

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

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

sef-204-025 (20180104)

56. Removing or Abandoning Miscellaneous Structures.

Replace standard spec 204.5.1(3) with the following:

When backfilling with Backfill Granular as specified in this special provision article or as directed by the engineer, the item Backfill Granular is considered incidental to the appropriate bid item.

At locations where Backfill Granular is not specified, contractor may choose to use either Backfill or Backfill Granular, and no separate payments will be made for using Backfill Granular.

Supplement standard spec 204.3.2.2 with the following:

Backfill existing storm sewer or existing storm sewer structure locations shown for removal or abandonment outside the new traveled way with native backfill immediately after completing the sewer work. Backfill according to standard spec 209 within the traveled way.

All backfill, including native material, provided for removal or abandonment of existing storm sewer structures and pipes is considered incidental to the appropriate bid item.

SEF Rev. 14_1215

57. Preparing Roadway Foundation.

Replace standard spec 205.3.2(5) with the following:

Completely remove pavement, asphaltic surface, and rigid base from within the roadbed slopes and underlying proposed embankments.

58. Roadway Excavation.

Add the following to standard spec 205.5.2(1):

Provide the department with an earth flow diagram within 30 calendar days of receiving the contract Notice to Proceed.

Identify all excavation required for the project, all sources of roadway embankment fill including offsite material, shrinkage and swell factors, proposed stockpile material, structure excavation (if used in embankments), waste, and fills anticipated to be treated with a soil drying agent. Provide start and finish dates for each grading area within the division. These dates should correspond to the dates shown on the project schedule.

Any deviation from the sequencing shown in the earth flow diagram will require approval from the engineer and will require an update to the earth flow diagram.

Attend biweekly earthwork meetings scheduled by the engineer to discuss earth flows, borrow sites, soil drying and strengthening, and other upcoming earthwork activities and technical issues.

Replace standard spec 205.3.13(3) with the following:

The engineer will evaluate cuts and shallow fills to determine if corrective work, EBS Excavation/EBS Backfill is required. If the engineer requests, provide loaded trucks and run the grade as the engineer directs to confirm yielding areas. Perform EBS Excavation/EBS Backfill in yielding areas as the engineer directs.

Add the following to standard spec 205.5.2(2):

The department will not pay EBS to remove frost from embankments or cut sections, unless directed by the engineer. It is the contractor's responsibility to stage construction so that exposed subgrades do not freeze or to provide adequate frost protection. Any work necessary to remove and replace frozen materials from newly constructed embankments or exposed cut sections is considered incidental to the excavation bid items.

59. Right-of-Way Fencing.

Remove existing right-of-way chain link fencing, as shown in the plans, to allow for construction operations. A quantity of the Removing Fence, Item 204.0170 has been included in the contract for this

purpose. Install new chain link fence within 30 calendar days of the removal of the existing fence. Provide temporary connections between existing and proposed fencing as needed to maintain continuous right of way fencing at all times. A quantity of the Fence Safety item has been included in the contract for this purpose. Where buried facilities or subsurface conditions do not permit driving posts for the safety fence, support posts by other means that will provide stability comparable to driven posts.

At no time leave a site where the fencing is inadequate to protect the general public.

60. Project Site Air Quality.

Because fine particulate matter levels for Milwaukee, Racine and Kenosha Counties are typically close to $PM_{2.5}$ limits and the project is in a non-attainment area for the federal 8-hour ozone standard, contributions from construction activities can have a major impact well beyond the project limits. Take practical measures to mitigate the impact of operating construction equipment on the air quality in and around the project site.

Voluntarily establishing the staging zones for trucks waiting to load and unload is encouraged by the department. Locate staging zones where idling of diesel powered equipment will have minimal impact on abutting properties and the general public. The department will make signs available to help identify these zones. Have truckers queue up in these zones whenever it is practical. The department further encourages drivers to shut down diesel trucks as soon as it appears likely that they will be queued up for more than ten minutes. Notify employees and sub-contractors about fueling and engine idling.

Portable Concrete Crusher Plants

Portable concrete crusher plants may need a NR 440 Concrete Crusher Plant Air Permit for air emissions. Please contact Wisconsin Department of Natural Resources to request additional information and permit application materials. Complete permit applications may take 3 months to process.

sef-999-039 (20160929)

61. Abatement of Asbestos Containing Material B-40-338, Item 203.0211.S.0001; Abatement of Asbestos Containing Material B-45-17, Item 203.0211.S.0002; Abatement of Asbestos Containing Material B-45-18, Item 203.0211.S.0004.

A Description

This special provision describes abating asbestos containing material on structures.

B (Vacant)

C Construction

B-40-338

John Roelke, License Number AII-119523, inspected Structure B-40-338 for asbestos on April 15, 2013. Regulated Asbestos Containing Material (RACM) was found on this structure in the following locations and quantities: The gaskets under the railing attachment plates on the concrete parapets. The RACM material is estimated at 28 square feet and is classified as non-friable.

B-45-17

John Roelke, License Number AII-119523, inspected Structure B-45-17 for asbestos on April 15, 2013. Regulated Asbestos Containing Material (RACM) was found on this structure in the following locations and quantities: The gaskets under the railing attachment plates on the concrete parapets. The RACM material is estimated at 28 square feet and is classified as non-friable.

B-45-18

John Roelke, License Number AII-119523, inspected Structure B-45-18 for asbestos on April 15, 2013. Regulated Asbestos Containing Material (RACM) was found on this structure in the following locations and quantities: The gaskets under the railing attachment plates on the concrete parapets and the caulk around the bolts in the attachment plates. The RACM material is estimated at 28 square feet and is classified as non-friable.

The RACM on this structure must be abated by a licensed abatement contractor. A copy of the inspection report is available from Steve Hoff, WisDOT SE Region Project Manager, 262-548-6718. According to NR447 and DHS159, ensure that DNR or DHS receives a completed Notification of Demolition and/or Renovation (DNR Form 4500-113 (R 4/11), or subsequent revision) via U.S. mail, hand-delivery, or using the online notification system at least 10 working days before beginning any construction or demolition.

Pay all associated fees. Provide a copy of the completed 4500-113 form and the abatement report to Andrew Malsom, WisDOT SE Region Hazmat Program Environmental Engineer, 262-548-6705 and DOT BTS-ESS attn: Hazardous Materials Specialist, 5 South S513.12, PO Box 7965, Madison, WI 53707-7965. In addition, comply with all local or municipal asbestos requirements.

Use the following information to complete WisDNR form 4500-113:

B-40-338

- Site Name: Structure B-40-338, County Line Rd. over IH 43 / STH 32
- Site Address: 2.0 miles east junction STH 57
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow St., PO Box 798, Waukesha, WI 53187-0798
- Contact: Heather Sackman
- Phone: 414-750-3233
- Age: 54 years. This structure was constructed in 1967.
- Area: 12,444 SF of deck

B-45-17

- Site Name: Structure B-45-17, CTH W / Port Washington Rd. over IH 43 / STH 32
- Site Address: 1.6 miles north junction STH 32
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow St., PO Box 798, Waukesha, WI 53187-0798
- Contact: Heather Sackman
- Phone: 414-750-3233
- Age: 55 years. This structure was constructed in 1966.
- Area: 19,100 SF of deck

B-45-18

- Site Name: Structure B-45-18, Donges Bay Rd. over IH 43 / STH 32
- Site Address: 0.1 miles east junction CTH W
- Ownership Information: WisDOT Transportation SE Region, 141 NW Barstow St., PO Box 798, Waukesha, WI 53187-0798
- Contact: Heather Sackman
- Phone: 414-750-3233
- Age: 55 years. This structure was constructed in 1966.
- Area: 7,505 SF of deck

Insert the following paragraph in Section 6.g.:

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

D Measurement

The department will measure Abatement of Asbestos Containing Material (Structure #) by each structure, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
203.0211.S.0001	Abatement of Asbestos Containing Material B-40-338	EACH
203.0211.S.0002	Abatement of Asbestos Containing Material B-45-17	EACH
203.0211.S.0004	Abatement of Asbestos Containing Material B-45-18	EACH

Payment is full compensation for submitting necessary forms; removing all asbestos; and for properly disposing of all waste materials.

stp-203-005 (20210708)

62. Abandoning Sewer, Item 204.0291.S.

A Description

This special provision describes abandoning existing sewer by filling it with cellular concrete according to the pertinent requirements of standard spec 204 and standard spec 501, as shown in the plans, and as hereinafter provided.

B Materials

Provide cellular concrete meeting the following specifications: 1 part cement, 1 part fly ash, 8 parts sand, or an approved equal, and water. Provide cement meeting the requirements of standard spec 501.2.1 for Type 1 Portland Cement. Provide sand meeting the requirements of standard spec 501.2.5.3 Provide water meeting the requirements of standard spec 501.2.4.

C Construction

Fill the abandoned sewer pipe with cellular concrete as directed by the engineer. In the event that the sewer cannot be completely filled from existing manholes, tap the sewer where necessary and fill from these locations.

D Measurement

The department will measure Abandoning Sewer in volume by the cubic yard according to standard spec 109.1.3.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
204.0291.S	Abandoning Sewer	CY

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

stp-204-050 (20080902)

63. Removing Barricade Rack and Barricades, Item 204.9060.S.0001.

A Description

This special provision describes removing end wall in accordance to the pertinent provisions of standard spec 204 and as hereinafter provided.

B (Vacant)

C (Vacant)

D Measurement

The department will measure Removing End Wall as each individual end wall, acceptably removed, measured individually for each required plan location.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
204.9060.S.0002	Removing Barricade Rack and Barricades	EACH

Payment is full compensation for removing, hauling and disposing of materials.

204-025 (20041005)

64. Removing Lighting Units, Item 204.9060.S.1001.

A Description

This special provision describes the removing lighting units as the plans show, conforming to standard spec 204, and as follows.

B Materials

All removed material shall become the property of the contractor and be disposed off the project site. Lamps, which are considered a hazardous material, become property of the contractor and shall be disposed of an environmentally sound manner.

C Construction

Remove lighting units consisting of pole, arm, luminaire, lamp, wires, breakaway device, and associated hardware and appurtenances.

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

D Measurement

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

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
204.9060.S.1001	Removing Lighting Units	Each

SER-204.15 (20171021)

65. Removing Luminaires, Item 204.9060.S.3001.

A Description

This special provision describes removing existing luminaires from existing traffic signal poles as shown on the plans, in accordance to the pertinent provisions of standard spec 204, and as hereinafter provided. Specific removal items are noted in the plans.

B (Vacant)

C Construction

Arrange for the de-energizing of luminaires after receiving approval from the engineer that the existing luminaires can be removed.

Remove luminaires and lamps from the existing traffic signal poles. Removed luminaires and lamps become the property of the contractor and shall be disposed off the project site. Lamps, which are considered a hazardous material, shall be disposed of an environmentally sound manner.

D Measurement

The department will measure Removing Luminaires by each individual unit acceptably completed.

E Payment

The department will pay for the measured quantity at the contract unit price under the following bid item.

ITEM NUMBER	DESCRIPTION	UNIT
204.9060.S.3001	Removing Luminaires	Each

Payment is full compensation for removing, scrapping of some materials, disposing of scrap material, and for clean-up and waste disposal.

66. Remove Traffic Signals IH 43 NB Off Ramp & CTH W, Item 204.9060.S.3002.

A Description

This special provision describes removing existing traffic signals at the intersection of IH 43 NB Off Ramp & CTH W in accordance to the pertinent provisions of section 204 of the standard specifications and as hereinafter provided. Specific removal items are noted in the plans.

B (Vacant)

C Construction

Arrange for the de-energizing of the traffic signals with the local electrical utility after receiving approval from the engineer that the existing traffic signals can be removed.

Notify the department's Electrical Field Unit at (414) 266-1170 at least five (5) working days prior to the removal of the traffic signals. Complete the removal work as soon as possible following shut down of the equipment.

The Department assumes that all equipment is in good condition and in working order prior to the contractor's removal operation. Prior to removal, inspect and provide a list of any damaged or non-working traffic signal equipment to the engineer. Any equipment not identified as damaged or not working, prior to removal, will be replaced by the contractor at no cost to the department.

Remove all standards and poles per plan from their concrete footings and disassemble out of traffic. Remove the transformer bases from each pole. Remove the signal heads, monotube arms, wiring/cabling, and traffic signal mounting devices from each signal standard, arm or pole. Ensure that all access hand-hole doors and all associated hardware remain intact. Remove the traffic signal cabinet from the concrete footing. Dispose of the underground signal cable, internal wires and street lighting cable off the right of way. Deliver the remaining materials to the department's Electrical Shop located at 935 South 60th Street, West Allis. Notify the department's Electrical Field Unit at (414) 266-1170 at least five (5) working days prior to delivery to make arrangements.

D Measurement

The department will measure Remove Traffic Signals [Location] as each individual unit acceptably completed.

E Payment

The department will pay for the measured quantity at the contract unit price under the following bid item.

ITEM NUMBER	DESCRIPTION	UNIT
204.9060.S.3002	Remove Traffic Signals IH 43 Off Ramp & CTH W	EACH

Payment is full compensation for removing, disassembling traffic signals, scrapping of some materials, disposing of scrap material, for delivering the requested materials to the department.

67. Remove Loop Detector Wire and Lead-in Cable IH 43 NB Off Ramp & CTH W, Item 204.9060.3003; CTH W & Donges Bay Rd, Item 204.9060.S.3004.

A Description

This special provision describes removing loop detector wire and lead-in cable at the intersections of IH 43 NB Off Ramp & CTH W and CTH W & Donges Bay Rd. Removal will be in accordance with section 204 of the standard specifications, as shown in the plans, and as hereinafter provided.

B (Vacant)

C Construction

Notify the department's Electrical Field Unit at (414) 266-1170 (IH 43 NB Off Ramp & CTH W) and Ozaukee County Highway Department at (262) 284-8331 (CTH W & Donges Bay Rd) at least five working days prior to the removal of the loop detector wire and lead-in cable.

Remove and dispose of detector lead-in cable including loop wire for abandoned loops off the right of way.

D Measurement

The department will measure Remove Loop Detector Wire and Lead-in Cable [Location] as each individual unit acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
204.9060.S.3003	Remove Loop Detector Wire and Lead in Cable IH 43 NB Off Ramp & CTH W	EACH
204.9060.S.3004	Remove Loop Detector Wire and Lead in Cable CTH W & Donges Bay Rd	EACH

Payment is full compensation for removing, scrapping, and disposing of material and incidentals necessary to complete the contract work.

68. Removing Lannon Stone Wall, Item 204.9090.S.0001

A Description

This special provision describes removing the existing lannon stone wall located at Sta 51'DB'+25 conforming to standard spec 204.

B (Vacant)

C (Vacant)

D Measurement

The department will measure Removing the existing lannon stone wall in LF, acceptably completed.

E Payment

Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
204.9090.S.0001	Removing Lannon Stone Wall	LF

stp-204-025 (20150630)

69. Removing Temporary Shoring Left in Place, Item 204.9165.S.0001

A Description

This special provision describes removing temporary shoring left in place conforming to standard spec 204.

B (Vacant)

C (Vacant)

D Measurement

The department will measure Removing Temporary Shoring Left in Place in SF, acceptably completed.

E Payment

Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
204.9165.S.0001	Removing Temporary Shoring Left In Place	SF

stp-204-025 (20150630)

70. Prepare Foundation for Asphaltic Shoulders.

Add the following to standard spec 211.3.1:

Excavate and remove Base Aggregate Dense 1 ¼-Inch installed in a previous sequence for nightly freeway shoulder restoration to ensure no vertical drop-offs greater than two-inches adjacent to the travel lanes and to provide shoulder cross slopes with an 8% maximum rollover with the adjacent travel lanes for Peak Hour and Off Peak Hour freeway traffic operations providing two lanes in each direction.

Add the following to standard spec 211.5.1:

Payment for the Prepare Foundation for Asphaltic Shoulders bid item is full compensation for excavating, removing, hauling, and disposing of Base Aggregate Dense 1 ¼-Inch installed in a previous sequence for nightly freeway shoulder restoration to ensure no vertical drop-offs greater than two-inches adjacent to the travel lanes and to provide shoulder cross slopes with an 8% maximum rollover with the adjacent travel lanes for Peak Hour and Off Peak Hour freeway traffic operations providing two lanes in each direction.

71. QMP Subgrade.

A Description

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

- IH 43 mainline
- IH 43 ramps
- Cross roads
- Local roads

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

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

http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/rdwy/default.aspx

B Materials

B.1 Quality Control Plan

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

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

-An organizational chart with names, telephone numbers, current certifications or titles, and roles and responsibilities of QC, QV, and IA personnel.

-The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication process that will be used, and action time frames.

-An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.

-Location of the QC laboratory, retained sample storage, and control charts and other documentation.

-A summary of the locations and calculated quantities to be tested under this provision.

-An explanation regarding the basis of acceptance for material that cannot be tested by nuclear methods due to a high percentage of oversized particles.

B.2 Personnel

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

B.3 Laboratory

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

Materials Laboratory
3502 Kinsman Boulevard
Madison, Wisconsin 53704-2583
Telephone: 608-246-7938

http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/qual-labs.aspx

B.4 Equipment

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

Furnish nuclear gauges from the department's approved product list at:

http://www.atwoodsystems.com/.

Ensure that the gauge manufacturer or an approved calibration service calibrates the gauge within 12 months before using it on the project. Retain a copy of the calibration certificate with the gauge. Nuclear density gauge calibration verification is required daily when earthwork construction operations require testing under this special provision article. This calibration verification shall be performed using the departments "Validator" apparatus which will be located at a to be determined mutual site. Contract Paul Emmons at (414) 750-1561 ten calendar days in advance to coordinate the location. Establish a standard gauge reading for the "Validator" using the ten test average method. The source emitter depth for calibration verification, in the direct transmission mode, will be determined by the engineer. This procedure will establish the "Validator" apparatus, as the contractor's project reference site.

Conform to ASTM D 2950 and CMM 8.15 for density testing and gauge monitoring methods. Perform nuclear gauge measurements using gamma radiation in the backscatter or direct transmission position. Perform each test for 4 minutes of nuclear gauge count time.

B.5 Soil Source Study

Conduct and submit a soil source study before beginning of grading operations. Ensure that this study identifies each distinct soil type on the project within the top 15 feet of cut areas and all borrow material. Provide the in-bank natural moisture content for each soil. Develop moisture-density curves for each identified soil type by utilizing AASHTO T 99, with a minimum of 5 individual points, and a zero air voids curve at a specific gravity of 2.65. If a different specific gravity is used perform a specific gravity test. Determine the maximum density and corresponding optimum moisture level for each soil type. Develop a site-specific family of Proctor curves for this contract from the completed soil source study and submit to the engineer for review and acceptance.

Perform characterization tests on each of the soil types selected for the soil source study. The tests for roadway include AASHTO T 89, AASHTO T 90, AASHTO T 27, and AASHTO T 11. Classify each soil type selected according to the AASHTO soil classification system based on the characterization tests. Do not begin grading operations until the engineer accepts the soil source study.

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

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

Retain and identify two representative samples of each Proctor. Submit one sample to the engineer. Retain one sample on site for use when performing textural identification.

B.6 Quality Control Documentation

B.6.1 Control Charts

Maintain separate control charts for the field density and field moisture content of each grading area. Designate grading areas within the project as follows:

-Subgrade cut portions of the project.

-Embankment in pipe culvert trenches.

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

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

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

B.6.2 Records

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

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

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

B.7 Contractor Testing

B.7.1 General

Have a grading technician certified under HTCP at level I (or ACT Grading Technician under the direction of a certified technician) present during all subgrade preparation, fill placement, compaction, and testing. Have a nuclear density technician certified under HTCP at level I perform the testing for field density and field moisture content. During subgrade construction, use sampling and testing methods identified in the CMM to perform the required tests at randomly selected locations at the indicated minimum frequency for each grading area.

Determine the cubic yards for testing based on a total load count system the engineer and contractor agree to.

For each test, provide the cubic yards represented and the test location to within 2 feet horizontally and 0.5 feet vertically. Use project stationing to determine horizontal location and grade stakes to determine vertical location.

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

B.7.2 Field Density and Field Moisture

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

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

B.7.3 Testing Frequency

B.7.3.1 Subgrade Cut

Perform the required tests at the following frequencies:

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

B.7.3.2 Subgrade Embankment in Pipe Culvert Trenches

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

Test	Minimum Frequency
Field Density and Moisture (AASHTO T 310)	One test per 100 CY of backfill placed per lift or one test per day whichever yields the most tests.

B.7.4 Control Limits

B.7.4.1 Field Density

B.7.4.1.1 General Conditions

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

B.7.4.2 Field Moisture Content

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

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

B.7.5 Corrective Action

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

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

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

B.8 Department Testing

B.8.1 General

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

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

B.8.2 Verification Testing

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

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

The department will perform verification testing as follows:

1. The department will conduct verification tests on Proctor split samples taken by the contractor. These samples may be from the Soil Source Study or sample locations chosen by the engineer from anywhere in the process. The minimum verification testing frequency is one per 90,000 cubic yards, with at least one for each soil type identified in the Soil Source Study.
2. The engineer may select any contractor-retained sample for verification testing.
3. The department will conduct at least one verification test for field density and field moisture per 20,000 cubic yards.

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

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

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

B.8.3 Independent Assurance Testing

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

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

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

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

B.9 Dispute Resolution

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

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

B.10 Acceptance

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

C (Vacant)

D (Vacant)

E Payment

Costs for all sampling, testing, and documentation required under this special provision are incidental to the work. If the contractor does not perform the work required under this special provision, the department may reduce the contractor's pay. The department will administer pay reduction under the Non-performance of QMP administrative item.

~~sef-207-005 (20171004)~~

72. QMP Base Aggregate Lab Location.

Add the following as paragraph 2 to "B.3 Laboratory" of the QMP Base Aggregate special provision:

(2) Locate the QC laboratory for base aggregate placement sample testing within 30 miles of the project.

stp-301-020 (20080902)

73. Base Aggregate Dense 1 1/4-Inch for Lower Base Layers.

Replace standard spec 305.2.2.1(2) with the following:

(2) Unless the plans or special provisions specify otherwise, do the following:

1. Use 1 1/4-inch base throughout the full base depth.
2. Use 3/4-inch base in the top 3 inches of the unpaved portion of shoulders. Use 3/4-inch base or 1 1/4-inch base elsewhere in shoulders.

stp-305-020 (20080902)

74. QMP HMA Pavement Nuclear Density.

A Description

Replace standard spec 460.3.3.2 (1) and standard spec 460.3.3.2 (4) with the following:

(1) This special provision describes density testing of in-place HMA pavement with the use of nuclear density gauges. Conform to standard spec 460 except as modified in this special provision.

(2) Provide and maintain a quality control program defined as all activities and documentation of the following:

1. Selection of test sites.
2. Testing.
3. Necessary adjustments in the process.
4. Process control inspection.

(3) Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes required procedures.

https://wisconsindot.gov/rdwy/cmm/cm-08-00toc.pdf

(4) The department's Materials Reporting System (MRS) software allows contractors to submit data to the department electronically, estimate pay adjustments, and print selected reports. Qualified personnel may obtain MRS software from the department's web site at:

http://www.atwoodsystems.com/

B Materials

B.1 Personnel

(1) Nuclear gauge owners and personnel using nuclear gauges shall comply with WisDOT requirements according to 460.3.3 and CMM 8-15.

B.2 Testing

(1) Conform to ASTM D2950 and CMM 8.15 for density testing and gauge monitoring methods. Conform to CMM 8-15.10.4 for test duration and gauge placement.

B.3 Equipment

B.3.1 General

(1) Furnish nuclear gauges according to CMM 8-15.2.

(2) Furnish nuclear gauges from the department's approved product list at

https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/default.aspx

B.3.2 Comparison of Nuclear Gauges

B.3.2.1 Comparison of QC and QV Nuclear Gauges

(1) Compare QC and QV nuclear gauges according to CMM 8-15.7.

B.3.2.2 Comparison Monitoring

(1) Conduct reference site monitoring for both QC and QV gauges according to CMM 8-15.

B.4 Quality Control Testing and Documentation

B.4.1 Lot and Sublot Requirements

B.4.1.1 Mainline Traffic Lanes, Shoulders, and Appurtenances

(1) Divide the pavement into lots and sublots for nuclear density testing according to CMM 8-15.10.2.

(2) Determine required number of tests according to CMM 8-15.10.2.1.

(3) Determine random testing locations according to CMM 8-15.10.3.

B.4.1.2 Side Roads, Crossovers, Turn Lanes, Ramps, and Roundabouts

(1) Divide the pavement into lots and sublots for nuclear density testing according to CMM 8-15.10.2.

(2) Determine required number of tests according to CMM 8-15.10.2.2.

(3) Determine random testing locations according to CMM 8-15.10.3.

B.4.2 Pavement Density Determination

B.4.2.1 Mainline Traffic Lanes and Appurtenances

(1) Calculate the average sublot densities using the individual test results in each sublot.

(2) If all sublot averages are no more than one percent below the target density, calculate the daily lot density by averaging the results of each random QC test taken on that day's material.

(3) If any sublot average is more than one percent below the target density, do not include the individual test results from that sublot when computing the lot average density and remove that sublot's tonnage from the daily quantity for incentive. The tonnage from any such sublot is subject to disincentive pay as specified in standard spec 460.5.2.2.

B.4.2.2 Mainline Shoulders

B.4.2.2.1 Width Greater Than 5 Feet

(1) Determine the pavement density as specified in B.4.2.1.

B.4.2.2.2 Width of 5 Feet or Less

(1) If all sublot test results are no more than 3.0 percent below the minimum target density, calculate the daily lot density by averaging all individual test results for the day.

(2) If a sublot test result is more than 3.0 percent below the target density, the engineer may require the unacceptable material to be removed and replaced with acceptable material or allow the nonconforming material to remain in place with a 50 percent pay reduction. Determine the limits of the unacceptable material according to B.4.3.

B.4.2.3 Side Roads, Crossovers, Turn Lanes, Ramps, and Roundabouts

(1) Determine the pavement density as specified in B.4.2.1.

B.4.2.4 Documentation

(1) Document QC density test data as specified in CMM 8.15. Provide the engineer with the data for each lot within 24 hours of completing the QC testing for the lot.

B.4.3 Corrective Action

(1) Notify the engineer immediately when an individual test is more than 3.0 percent below the specified minimum in standard spec 460.3.3.1. Investigate and determine the cause of the unacceptable test result.

(2) The engineer may require unacceptable material specified in B.4.3(1) to be removed and replaced with acceptable material or allow the nonconforming material to remain in place with a 50 percent pay reduction. Determine limits of the unacceptable area by measuring density of the layer at 50-foot increments both ahead and behind the point of unacceptable density and at the same offset as the original test site. Continue testing at 50-foot increments until a point of acceptable density is found as specified in standard spec 460.5.2.2(1). Removal and replacement of material may be required if extended testing is in a previously accepted sublot. Testing in a previously accepted sublot will not be used to recalculate a new lot density.

(3) Compute unacceptable pavement area using the product of the longitudinal limits of the unacceptable density and the full sublot width within the traffic lanes or shoulders.

(4) Retesting and acceptance of replaced pavement will be as specified in standard spec 105.3.

(5) Tests indicating density more than 3.0 percent below the specified minimum, and further tests taken to determine the limits of unacceptable area, are excluded from the computations of the sublot and lot densities.

(6) If two consecutive sublot averages within the same paving pass and same target density are more than one percent below the specified target density, notify the engineer and take necessary corrective action. Document the locations of such sublots and the corrective action that was taken.

B.5 Department Testing

B.5.1 Verification Testing

(1) The department will have a HTCP certified technician, or ACT working under a certified technician, perform verification testing. The department will test randomly at locations independent of the contractor's QC work. The department will perform verification testing at a minimum frequency of 10 percent of the sublots and a minimum of one sublot per mix design. The sublots selected will be within the active work zone. The contractor will supply the necessary traffic control for the department's testing activities.

(2) The QV tester will test each selected sublot using the same testing requirements and frequencies as the QC tester.

(3) If the verification sublot average is not more than one percent below the specified minimum target density, use the QC tests for acceptance.

(4) If the verification sublot average is more than one percent below the specified target density, compare the QC and QV sublot averages. If the QV sublot average is within 1.0 lb/ft^3 of the QC sublot average, use the QC tests for acceptance.

(5) If the first QV/QC sublot average comparison shows a difference of more than 1.0 lb/ft^3 each tester will perform an additional set of tests within that sublot. Combine the additional tests with the original set of tests to compute a new sublot average for each tester. If the new QV and QC sublot averages compare to within 1.0 lb/ft^3, use the original QC tests for acceptance.

(6) If the QV and QC sublot averages differ by more than 1.0 lb/ft^3 after a second set of tests, resolve the difference with dispute resolution specified in B.6. The engineer will notify the contractor immediately when density deficiencies or testing precision exceeding the allowable differences are observed.

B.5.2 Independent Assurance Testing

(1) Independent assurance is unbiased testing the department performs to evaluate the department's verification and the contractor's QC sampling and testing including personnel qualifications, procedures, and equipment. The department will perform the independent assurance review according to the department's independent assurance program.

B.6 Dispute Resolution

(1) The testers may perform investigation in the work zone by analyzing the testing, calculation, and documentation procedures. The testers may perform gauge comparison according to B.3.2.1.

(2) The testers may use comparison monitoring according to B.3.2.2 to determine if one of the gauges is out of tolerance. If a gauge is found to be out of tolerance with its reference value, remove the gauge from the project and use the other gauge's test results for acceptance.

(3) If the testing discrepancy cannot be identified, the contractor may elect to accept the QV sublot density test results or retesting of the sublot in dispute within 48 hours of paving. Traffic control costs will be split between the department and the contractor.

(4) If investigation finds that both gauges are in error, the contractor and engineer will reach a decision on resolution through mutual agreement.

B.7 Acceptance

(1) The department will not accept QMP HMA Pavement Nuclear Density if a non-compared gauge is used for contractor QC tests.

C (Vacant)

D (Vacant)

E Payment

E.1 QMP Testing

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

E.2 Disincentive for HMA Pavement Density

(1) The department will administer density disincentives as specified in standard spec 460.5.2.2.

E.3 Incentive for HMA Pavement Density

(1) The department will administer density incentives as specified in standard spec 460.5.2.3.

stp-460-020 (20181119)

75. QMP Base Aggregate Dense 1 1/4-Inch Compaction, Item 371.2000.S.

A Description

(1) This special provision describes modifying the compaction and density testing and documentation requirements of work done under the Base Aggregate Dense 1 1/4-Inch bid items. Conform to standard spec 305 as modified in this special provision and to the contract QMP Base Aggregate article.

(2) Provide and maintain a quality management program. A quality management program is defined as all activities, including process control, inspection, sampling and testing, and necessary adjustments in the process related to construction of dense graded base which meets all the requirements of this provision.

(3) Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes sampling and testing procedures.

http://wisconsindot.gov/rdwy/cmm/cm-08-00toc.pdf

(4) This special provision applies to Base Aggregate Dense 1 1/4-Inch material placed: above at least 16 inches of subgrade improvement, 12 inches of subgrade improvement and geogrid or QMP subgrade provisions, between shoulder hinge points and lower than mainline pavement. Unless otherwise specified by the contract, all Base Aggregate Dense 1 1/4-Inch material placed on side roads, private and public entrances, individual ramps less than 1500 feet, passing lanes less than 1500 feet, tapers, turn lanes, and other undefined locations are exempt from the compaction and density requirement modifications and testing contained within this special provision.

B (Vacant)

C Construction

C.1 General

(1) The engineer shall approve the grade before placement of the base. Approval of the grade shall be in accordance with applicable provisions of the standard specifications.

Add the following to standard spec 305.3.2.2:

(3) For 1 1/4-Inch dense graded base composed of < or = 20% reclaimed asphaltic pavement (RAP) or crushed concrete (RCA), as determined by classification of material (aggregate or RAP and/or RCA) and

percentage by weight of each material type retained on the No. 4 Sieve, the contractor must determine the material target density in accordance with:

Method 1: Maximum dry density in accordance with AASHTO T-180, Method D, with correction for coarse particles and modified to require determination of Bulk Specific Gravity (Gm) in accordance with AASHTO T 85. Bulk Specific Gravities determined in accordance with standard spec 106.3.4.2.2 for aggregate source approval may be utilized.

(4) For 1 1/4-Inch dense graded base composed of >20% RAP or RCA, as determined by classification of material (aggregate or RAP and/or RCA) and percentage by weight of each material type retained on the No. 4 Sieve, the contractor may choose from the following options to determine the material target density:

Method 2: Maximum dry density as determined by AASHTO T-180, Method D, with correction for coarse particles, and modified to require determination of Bulk Specific Gravity (G_m) in accordance with AASHTO T 85.

Method 3: Maximum wet density as determined by AASHTO T-180, Method D, modified to define *Maximum Density* as the wet density in pounds per cubic foot of soil at optimum moisture content using Method D specified compaction, with correction for coarse particles, and modified to require determination of Bulk Specific Gravity (G_m) in accordance with AASHTO T 85.

Method 4: Average of 10 random control strip wet density measurements as described in section C.2.5.1.

(5) Compact the 1 1/4-Inch dense graded base to a minimum of 93.0% of the material target density for methods 1, 2 and 3. Compact 1 ¼-inch dense graded base to a minimum of 96% of the material target density for method 4. Ensure that adequate moisture is present during placement and compaction operations to prevent segregation and to help achieve compaction.

(6) Base Aggregate Dense 1 1/4-Inch will be accepted for compaction on a lot basis.

(7) Field density tests on materials using contractor elected target density methods 3 or 4 will not be considered for lot acceptance on the basis of compaction under the requirements of this provision until the moisture content of the in-place material is less than 2.0 percentage points above the maximum wet density optimum moisture or 2.0 percentage points of the average moisture content of the 10 density tests representing a control strip, respectively. Determine moisture content using AASHTO T255 as modified in CMM chapter 8 or a nuclear density gauge. If conducting AASHTO T255, sample materials after watering but before compaction.

C.2 Quality Management Program

C.2.1 Quality Control Plan

(1) Submit a comprehensive written quality control plan to the engineer no later than 10 business days before placement of material. Do not place any dense graded base before the engineer reviews and accepts the plan. Construct the project as the plan provides.

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

1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
2. The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication process that will be used, and action time frames.
3. A list of source locations, section and quarter descriptions, for all aggregate materials requiring QC testing.
4. Descriptions of stockpiling and hauling methods.
5. An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.
6. Location of the QC laboratory, retained sample storage, and other documentation.
7. Lot layout and random test location plan.
8. A description of placement methods and operations. Including, but not limited to: staging, construction of an initial working platform, lift thicknesses, and equipment.

C.2.1 Pre-Placement Meeting

A minimum of two weeks before placement of Base Aggregate Dense 1 1/4-Inch material, hold a pre-placement meeting at a mutually agreed upon time and location. Present the Quality Control Plan at the meeting. Attendance at the pre-placement meeting is mandatory for the project superintendent, quality control manager, project inspection and testing staff, all appropriate contractor personnel involved in the

sampling, testing, and quality control including subcontractors, and the engineer or designated representatives.

C.2.2 Personnel

(1) Perform the quality control sampling, testing, and documentation required under this provision using technicians certified by the Department's Highway Technician Certification Program (HTCP). Have a HTCP Nuclear Density Technician I, or ACT certified technician, perform field density and field moisture content testing. Adhere to the minimum required certifications for aggregate testing per part 7 of the standard specification. AASHTO T180 proctor testing requires a minimum certification level of AGGTEC-1.

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

C.2.3 Equipment

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

(2) Furnish nuclear gauges from the department's approved product list at:

http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/default.aspx

(3) Ensure that the nuclear gauge manufacturer or an approved calibration service calibrates the gauge the same calendar year it is used on the project. Retain a copy of the calibration certificate with the gauge.

(4) For all target density methods, conform to AASHTO T310 and CMM 8-15 for wet density testing and gauge monitoring methods.

(5) For the specified target density determined using method 1 in section C.1, compute the dry densities for the compacted dense graded base, composed of < or = 20% RAP or RCA, according to AASHTO T310.

(6) For contractor elected target density method 2 in section C.1, compute dry densities of dense graded base composed of >20% RAP or RCA using a moisture correction factor and the nuclear wet density value. Determine the moisture correction value, for each Proctor produced under the requirements of C.2.5, using the moisture bias as shown in CMM 8.15.12.1 and 8.15.12.2, except the one-point Proctor tests of the 5 random tests is not required. Conduct a moisture bias test for every 7500 feet of Base Aggregate Dense 1 1/4-Inch placed. Determine natural moistures in the laboratory.

(7) Perform nuclear gauge measurements using gamma radiation in the backscatter or direct transmission position. Backscatter may be used only if the material being tested cannot reliably maintain an undistorted direct transmission test hole. Direct transmission tests must be performed at the greatest possible probe depth of 2 inches, 4 inches, or 6 inches, but not to exceed the depth of the compacted layer being tested. Perform each test for at least one minute of nuclear gauge count time.

C.2.5 Contractor Testing

(1) Perform compaction testing on the mainline dense graded base material, as defined by A.(4). Perform the quality control sampling, testing, and documentation required under this provision using HTCP certified technicians as required in C.2.3. Conform to CMM 8-15 for testing and gauge monitoring methods.

(2) Select test sites randomly using ASTM Method D3665. Random numbers may be determined using an electronic random number generator. Guidance for determining test locations can be found in section 8-30.9 of the Construction and Materials Manual (CMM). Test locations must be kept a minimum of 3 feet from the unsupported edge of dense graded base layers.

(3) When a density target is determined in accordance methods 3 or 4 in section C.1, conduct density testing on same date of final compaction.

C.2.5.1 Contractor Required Quality Control (QC) Testing

(1) Conduct testing at a minimum frequency of one test per lot. A lot is 1500 feet for each layer with a maximum width of 18 feet, minimum width of 6 feet, and minimum lift thickness of 2" of Base Aggregate Dense 1 1/4-Inch material placed. Each lot of compacted Base Aggregate Dense 1 1/4-Inch material, as defined by A.(4), will be accepted when the lot field density meets the required minimum density. Lots that don't achieve density requirements must be addressed and approved in accordance with C.2.7.

(2) Add separate lots for passing lanes and individual ramps greater than 1500 feet.

(3) Combine partial lots less than 750 feet with the previous lot. Partial lots greater than or equal to 750 feet are standalone lots.

(4) Notify the engineer, if a lot field density test falls below the required minimum value. Document and perform corrective actions in accordance with C.2.7. Deliver documentation of all compaction testing results to the engineer at the time of testing.

C.2.5.1.1 Target Density Determination

C.2.4.1.1.1 Maximum Wet and/or Dry Density Methods

(1) For contractor elected target density methods 2 and 3 in section C.1, and contractually specified target density method 1 in section C.1; perform one gradation and 5-point Proctor test before placement of 1 ¼-Inch dense graded base. Perform additional gradations every 3000 tons in accordance with standard spec 305 and 730. If sampling requirements are identical, samples/testing performed for the QMP Base Aggregate specification may be used to fulfill the gradation testing requirements of this specification.

(2) Perform additional 5-point Proctor tests, at a minimum, when:

1. The four point moving average gradation on any one sieve differs from the original gradation test result for that sieve, by more than 10 percentage points. The original gradation test is defined as the gradation of the material used to create a 5-point Proctor. Each 5-point Proctor test will remain valid for any material with gradation for all sieves within 10.0 percentage points of that Proctor's original gradation test.
2. The source of base aggregate changes.
3. Percent target density exceeds 103.0% on two consecutive density tests.

(3) Provide Proctor test results to the engineer within two business days of sampling. Provide gradation test results to the engineer within one business day of sampling.

(4) Split each contractor QC Proctor sample and identify it according to CMM 8-30. Deliver the split to the engineer within one business day for department QV Proctor testing.

(5) Split each non-Proctor contractor QC sample and identify it according to CMM 8-30. Retain the split for 7 calendar days in a dry, protected location. If requested for department comparison testing, deliver the split to the engineer within one business day.

C.2.5.1.1.2 Density Control Strip Method

(1) For contractor elected target density method 4 in section C.1, construct a control strip for each layer of placement to identify the target wet density for the base aggregate dense material. The control strip construction and density testing will occur under the direct observation and/or assistance of the department QV personnel. For blended material, reprocessed material and crushed concrete, perform additional gradations every 3000 tons in accordance with standard spec 305 and 730. If sampling frequencies are identical, samples/testing performed for the QMP Base Aggregate specification may be used to fulfill the gradation testing requirements of this specification.

(2) Unless the engineer approves otherwise, construct control strips to a minimum dimension of 300 feet long and one full lane width.

(3) Completed control strips may remain in-place to be incorporated into the final roadway cross-section.

(4) Construct additional control strips, at a minimum, when:

1. The source of base aggregate changes.
2. The four point moving average percentage of blended recycled materials, from classification of material retained on the No. 4 sieve in the original gradation test, differs by more than 10 percentage points. The original gradation test is defined as the gradation of the material used to construct the control strip.
3. The layer thickness changes more than 2.0 inches.
4. The percent target density exceeds 103.0% on two consecutive density measurements.

(5) Construct control strips using equipment and methods representative of the operations to be used to place and compact the remaining 1 1/4–Inch Base Aggregate Dense material. Wet the base, as mutually agreed upon by the contractor and engineer, to obtain and/or maintain adequate moisture content to ensure proper compaction. Discontinue water placement if the base begins to exhibit signs of saturation or instability.

(6) After compacting the control strip with a minimum of 2 passes, mark and take density measurements at 3 random locations. Subsequent density measurements will be taken at the same 3 locations. Test locations must be kept a minimum of 3 feet from the unsupported edge of dense graded base layers.

(7) After each subsequent pass of compaction equipment over the entirety of the control strip, take wet density measurements at the 3 marked locations. Continue compacting and testing until the increase in wet density measurements are less than 2.0 lb/ft^3, or the density measurements begin to decrease.

(8) Upon completion of control strip compaction, take 10 randomly located wet density measurements within the limits of the control strip. The final measurements recorded at the 3 locations under article C.2.4.1.1.2 may be included as 3 of the 10 measurements. Average the ten measurements to obtain the control strip target density and target moisture for use in contractor elected method 4 in section C.1. Test locations must be kept a minimum of 3 feet from the unsupported edge of dense graded base layers.

C.2.6 Department Testing

C.2.6.1 General

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

(2) When a density target is determined in accordance methods 3 and 4 in section C.1, conduct density testing on same date of final compaction.

C.2.6.2 Quality Verification (QV) Testing

(1) The department will have an HTCP technician, or ACT working under a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified in C.2.3 for contractor testing personnel for each test result being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.

(2) The department will conduct QV tests at the minimum frequency of 20% of the required gradation, density and Proctor contractor tests.

(3) The department will utilize contractor's QC Proctor results for determination of the material target density. The department will verify QC Proctor values by testing QC Proctor split sample. The department will use QC Proctor value as a target density if the QC and QV Proctor test results meet the tolerance requirements specified in section C.2.6.2(7).

(4) The department will locate gradation and nuclear density test samples, at locations independent of the contractor's QC work, collecting one sample at each QV location. Sampling for gradation may be done independently of nuclear density tests, before watering and before compacting. The department will split each QV sample, test half for QV, and retain the remaining half for 10 calendar days.

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

(6) The department will utilize control strip target density testing results in lieu of QV Proctor sampling and testing when the contractor elected target density method 4 in section C.1 is used.

(7) The department will assess QV results by comparing to the appropriate specification limits. If QV test results conform to this special provision, the department will take no further action. If QV test results are nonconforming, take corrective actions in accordance with C.2.7 until the requirements of this special provision are met. Differing QC and QV nuclear density values of more than 2.0 pcf will be investigated and resolved. Differing QC and QV Proctor values of more than 3.0 pcf will be investigated and resolved.

C.2.6.3 Independent Assurance (IA)

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

1. Split sample testing.
2. Proficiency sample testing.
3. Witnessing sampling and testing.
4. Test equipment calibration checks.

5. Requesting that testing personnel perform additional sampling and testing.

(2) If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend placement until action is taken. Resolve disputes as specified in C.2.6.4.

C.2.6.4 Dispute Resolution

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

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

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

C.2.7 Corrective Action

(1) Lots not achieving the minimum density requirements may be addressed and accepted for compaction in accordance with the requirements of this section. Unless directed by the engineer, corrective actions taken to address an unacceptable lot must be applied to the entire lot corresponding to the non-conforming test.

(2) Investigate the moisture content of material in an unacceptable lot. Moisture content testing/samples collected under the QC and/or QV testing articles of this specification may be used to complete this investigation. Obtain moisture content readings in accordance with ASTM D 6938. For material composed of >20% RAP or RCA, correct the moisture content with the moisture correction value using the moisture bias, as shown in CMM 8.15.12.1 and 8.15.12.2, except the one-point Proctor tests of the 5 random tests is not required.

(3) Lots with moisture contents within 2.0 percentage points of optimum moisture for target density methods 1, 2 and 3 in section C.1, or within 2.0 percentage points of the target moisture content for target density method 4 in section C.1, and exhibiting no signs of deflection when subjected to loading by the heaviest roller used in the placement and compaction operations, shall be compacted a minimum of one more pass using equipment and methods representative of the operations used to place and compact the Base Aggregate Dense 1 1/4–Inch, and density tested at the same location (station and offset) as the failing QC and/or QV density tests. If the change in density exceeds 2.0 lb/ft^3 continue subsequent compactive efforts and density testing on that lot, at no additional cost to the department. If the change in density is less than or equal to 2.0 lb/ft^3, the lot is accepted as satisfying the compaction requirements of this provision.

(4) Lots with moisture contents within 2.0 percentage points of optimum moisture for target density methods 1, 2, or 3 in section C.1, or within 2.0 percentage points of the target moisture content for target density method 4 in section C.1 and exhibiting signs of deflection when subjected to loading by the heaviest roller used in the placement and compaction operations, will be reviewed by the engineer. The engineer may request subgrade improvement methods, such as excavation below subgrade (EBS), installation of geotextile fabrics, installation of breaker run material, or others to be completed, or may request an additional pass of compactive effort using equipment and methods representative of the operations used to place and compact the base aggregate dense and density test.

1. If, after an additional pass, the change in density at the same location (station and offset) as the failing QC and/or QV density tests exceeds 2.0 lb/ft^3 in a lot continue subsequent compactive efforts and density testing on that lot. If the change in density at the same location (station and offset) as the failing QC and/or QV density tests is less than or equal to 2.0 lb/ft^3, and subgrade improvement methods are not requested by the engineer, the lot is accepted as satisfying the compaction requirements of this provision.
2. If subgrade improvement methods are requested by the engineer, upon completion, including compaction of the restored base material, conduct a density test within the improved subgrade limits. This density test result will replace the prior field density value. If the lot field density equals or exceeds the minimum density

requirement defined in section C.1, the lot is accepted as satisfying the compaction requirements of this provision. If the lot field density fails to achieve the minimum density requirement defined in section C.1, compact the lot a minimum of one more pass using equipment and methods representative of the operations used to place and compact the base aggregate dense; and density test at the same location (station and offset) as the failing QC and/or QV density tests. If the change in density exceeds 2.0 lb/ft^3 continue subsequent compactive efforts and density testing on that lot, at no additional cost to the department. If the change in density is less than or equal to 2.0 lb/ft^3, the lot is accepted as satisfying the compaction requirements of this provision.

(5) Unacceptable lots, with moisture contents in excess of 2.0 percentage points above or below optimum moisture for target density methods 1, 2 or 3 in section C.1; or in excess of 2.0 percentage points above or below the target moisture content for target density method 4 in section C.1; shall receive contractor performed and documented corrective action; including additional density testing.

(6) Density tests completed subsequent to any corrective action will replace previous field density test results for that lot. Continue corrective actions until the minimum density requirement is achieved or an alternate compaction acceptance criteria is met in accordance with this section.

(7) Field moisture contents of materials tested using contractor elected target density methods 3 or 4 in section C.1 cannot exceed 2.0 percentage points of the optimum moisture content or 2.0 percentage points of the target moisture content, respectively. Density tests on materials using contractor elected target density methods 3 or 4 in section C.1 will not be considered for lot compaction acceptance until the moisture content of the corresponding density test of the in-place material is less than 2.0 percentage points above of the optimum moisture content or 2.0 percentage points of the target moisture content, respectively.

D Measurement

(1) The department will measure the QMP Base Aggregate Dense 1 1/4-Inch Compaction bid item by each lot, acceptably completed per C.2.5.1.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
371.2000.S	QMP Base Aggregate Dense 1 1/4-Inch Compaction	EACH

(2) Payment is full compensation for performing compaction testing; for sampling and laboratory testing; and for developing, completing, and documenting the compaction quality management program. The department will pay separately for providing aggregate under the Base Aggregate Dense 1 1/4-Inch bid item.

(3) The department will pay for additional tests directed by the engineer. One engineer directed test is equal to one acceptably completed lot of the QMP Base Aggregate Dense 1 1/4 -Inch Compaction bid item. The department will not pay for additional corrective action tests required due to unacceptable material.

stp-370-010 (20210113)

76. Concrete Maturity Testing.

A Description

This special provision requires using concrete maturity testing to determine strength for project control of concrete pavement, falsework removal, and structural concrete under the designated standard specs as follows:

Duration of the curing period.....415.3.12
Duration of the cold weather protection period 415.3.13
Opening to service.....415.3.15
Removing falsework.....502.3.4.2
Duration of the required curing period.....502.3.8
Duration of the cold weather protection period 502.3.9
Opening to service.....502.3.10.1

The requirement for determining strength by the concrete maturity testing method supersedes all provisions for strength determination by other methods or provisions based on equivalent days within those designated subsections. The concrete maturity testing requirement also applies to all other provisions referencing strength determination under these designated subsections.

B Materials

Provide a maturity testing system that uses data-encrypted sensor devices permanently embedded in the field-placed concrete. Data-encrypted sensors have a chip that records both temperature and time information that can be downloaded to a reading device not permanently attached to those sensors.

Provide the department with a maturity reading device for each maturity testing system used on the project. Devices provided for the department use will become department property under the contract.

C Construction

Perform concrete maturity testing conforming to standard specification 502.3.10.1.3.3. Develop a strength/maturity relationship for each concrete mix design used under the contract. Base that relationship on strength results of cylinders from pavement, appurtenant construction, ancillary concrete, or structural masonry units incorporated into the work and using those same mixes.

D (Vacant)

E Payment

No additional payment will be made by the department for maturity testing.

sef-502-005 (20170310)

77. Cold Patch, Item 495.1000.S.

A Description

This special provision describes furnishing cold patch and filling potholes and other voids in existing pavement surfaces as the engineer directs.

B Materials

Furnish a mixture of course aggregate, natural sand, and MC-250 bituminous material designed to have a workability range of 15-100º F without heating. Ensure that the mixture:

- Adheres to wet surfaces.
- Resists damage from water, salt, and deicing products.
- Requires no mixing or special handling before use.
- Supports traffic immediately after placement and compaction.

Conform to the following gradation:

SIEVE SIZE	PERCENT PASSING (by weight)
1/2-inch (12.5 mm)	100
3/8-inch (9.5 mm)	90 - 100
No. 4 (4.75 mm)	90 max
No. 8 (2.38 mm)	20 - 65
No. 200 (0.074 mm)	2 - 10
Bitumen	4.8 - 5.4

The department will accept cold patch based primarily on the engineer's visual inspection. The department may also test for gradation.

C Construction

Stockpile cold patch on site on a smooth, firm, well-drained area cleared of vegetation and foreign material. Cover the stockpile and ensure that it is easily accessible. Replenish the stockpile throughout the project duration but limit the size at any given time to 10 tons on site unless the engineer approves otherwise. Dispose of unused material at project completion unless the engineer directs otherwise.

Place cold patch by hand. Remove ponded water and loose debris before placement. Compact flush with a tamper, roller, or vehicle tire after placement.

Refill patched areas as necessary to maintain a flush pavement surface until project completion.

D Measurement

The department will measure Cold Patch by the ton, acceptably stockpiled on site.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
495.1000.S	Cold Patch	TON

Payment for Cold Patch is full compensation for providing and maintaining patches; for furnishing and replenishing stockpiled material on-site; and for disposing of excess material at project completion.

stp-495-010 (20160607)

78. Concrete Masonry Structures.

A Description

A.1 General

Work under this item applies to cast in place concrete for structures. Conform to standard specs 501, 502, 504, 701, 710 and 715 and as modified in this special provision. Apply this special provision to all cast in place concrete placed under the following bid items:

502.0100 Concrete Masonry Bridges
531.1100 Concrete Masonry Structures

A.2 Concrete Masonry Bridges

Work under the item Concrete Masonry Bridges applies to cast in place concrete for bridge substructures, which includes abutments and piers. Cast in place concrete for bridge superstructures, which includes bridge decks, raised medians, sidewalks, and parapets, is covered under the special provision item HPC Masonry Structures.

B (Vacant)

C Construction

Replace standard spec 501.3.8.2 with the following:

The contractor is responsible for the quality of the concrete placed in hot weather. Submit a written temperature control plan at or before the pre-pour meeting. In that plan, outline the actions taken to control concrete temperature if the concrete temperature at the point of placement exceeds 80 F. Do not place concrete without the engineer's written acceptance of that temperature control plan. Perform the work as outlined in the temperature control plan.

If the concrete temperature at the point of placement exceeds 90 F, do not place concrete under the following bid items:

- Concrete Masonry Bridges
- Concrete Masonry Retaining Walls
- Concrete Masonry Soldier Pile Footings

Notify the engineer whenever conditions exist that might cause the temperature at the point of placement to exceed 80 F. If project information is not available, obtain information from similar mixes placed for other nearby work.

Any additive or action taken to control the temperature of the Concrete Masonry to within the limits of this special provision, excluding the addition of ice to the concrete mix, is considered incidental to the work and will not be measured or paid for separately.

Add the following to standard spec 501.3 as subsection eleven:

501.3.11 Slip Forming

Do not place concrete by the slip-form method for any item covered by this special provision.

D (Vacant)

E (Vacant)

sef-504-005 (20180104)

79. Concrete Curing Materials.

Supplement standard spec 501.2.9 with the following:

The liquid curing compound shall have a color equal to or lighter than Gardner Color Standard No. 2 when tested according to ASTM C 1315 8.7.6 Yellowing Resistance.

80. Backfill Slurry.

This special provision describes furnishing and placing backfill slurry for, but not limited to, removing and abandoning utility pipes and structures, installation of storm sewer, sanitary sewer and water pipes and structures, and exposing existing utility items as shown on the plans.

Use fine aggregate in accordance to standard spec 501.2.5.3, number 1 and number 2 coarse aggregates conforming to standard spec 501.2.5.4, and water conforming to standard spec 501.2.4 in the backfill slurry mix. Provide a combined aggregate gradation for the backfill slurry mix conforming to standard spec 715.2.2. Weigh aggregates at a batch plant suitable for batching concrete masonry. Mix and deliver to the project site using a truck mixer. Add enough water to enable the mixture to flow readily. Submit a mix design for the engineers review prior to placement. Backfill Slurry is considered a class III concrete mix and the department will accept the mix by certification and will follow the QMP process per standard spec 716. Mix acceptance and testing in the field is not required.

Prior to placement of backfill slurry provide for positive drainage of the area to be backfilled. Discharge from the truck in a manner to prevent segregation. Consolidation or compaction effort will not be required. Twelve hours shall elapse before paving over the backfill.

Material placed within the roadway foundation as defined in standard spec 101.3 is subject to the quality control for the zone that the material is located in and shall conform to QMP Subgrade article listed elsewhere in this special provision document. Non-conforming slurry will be replaced at no additional cost to the department.

Include backfill slurry used for, but not limited to, removing and abandoning utility pipes and structures, installation of storm sewer, sanitary sewer and water pipes and structures, and exposing existing utility items under appropriate bid items. No separate payment will be made for providing positive drainage of the area to be backfilled; for providing mix design; for furnishing, mixing, transporting and placing backfill slurry, and for QMP certification.

81. Ice Hot Weather Concreting, Item 501.1000.S.

Conform to standard spec 501.3.8.2 except the department will pay for ice at the contract unit price under the Ice Hot Weather Concreting bid item. This special provision only applies to work done under the following contract bid items:

- Concrete Masonry Bridges
- Concrete Masonry Bridges HES
- Concrete Masonry Culverts
- Concrete Masonry Culverts HES
- Concrete Barrier Single-Faced 32-Inch
- Concrete Barrier Double-Faced 32-Inch
- Concrete Barrier Transition Section 32-Inch
- Concrete Masonry Retaining Walls
- Concrete Masonry Retaining Walls HES
- Concrete Masonry Endwalls
- Concrete Masonry Overlay Decks
- Concrete Barrier (S42 Special, S56 Special, S56C)
- Concrete Barrier Transition (G1, G2)

Replace standard spec 501.4 and 501.5 with the following:

501.4 Measurement

(1) The department will measure Ice Hot Weather Concreting by the pound acceptably completed, measured only if the conditions prescribed in standard spec 501.3.8.2 are met.

501.5 Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
501.1000.S	Ice Hot Weather Concreting	LB

(2) Payment for Ice Hot Weather Concreting is full compensation for ice used to cool concrete placed in hot weather as specified in standard spec 501.3.8.2.

(3) The department will not pay directly for the concrete specified under this section. Concrete is incidental to the various bid items using it. Payment under those bid items includes providing all materials, including aggregates and associated aggregate source testing, cement, fly ash, slag, and admixtures; and for preparing, transporting, storing, protecting and curing concrete.

(4) If required to remove and replace any concrete damaged by lack of proper protection. Perform this work at no expense to the department.

stp-501-010 (20210708)

82. Expansion Device, Item 502.3101.

A Description

This special provision describes furnishing and installing an expansion device as the plans show conforming to standard spec 502 as modified in this special provision.

B Materials

Furnish components for the Expansion Device System from an approved fabricator selected from the department's approved product list of Fabricated Bridge Components – Expansion Devices.

To be eligible for this project, expansion devices from other manufacturers must be pre-approved before the bid closing date. Applications for pre-approval may be submitted at any time. Prepare the application according to the department requirements. If needed, obtain information and assistance with the pre-approval process from the Structures Maintenance Section in the Bureau of Structures, by sending an email to the following address: DOTDLStructuresFabrication@dot.wi.gov

Expansion device strip seal gland size requirement of 4-inches, 5-inches, and 6-inches shall be as the plans show.

The minimum thickness of the polychloroprene strip seal shall be 1/4 inch for non-reinforced elastomeric glands and 1/8 inch for reinforced glands. Furnish the strip seal gland in lengths suitable for a continuous one-piece installation at each individual expansion joint location. Provide preformed polychloroprene strip seals that conform to the requirements ASTM D3542, and have the following physical properties:

Property Requirements	Value	Test Method
Tensile Strength, min.	2000 psi	ASTM D412
Elongation @ Break, min	250%	ASTM D412
Hardness, Type A, Durometer	55 ± 5 pts.	ASTM D2240
Compression Set, 70 hours @212˚F, max.	35%	D395 Method B Modified
Ozone Resistance, after 70 hrs. at 100˚F under 20% Strain with 100 pphm ozone	No Cracks	ASTM D1149 Method A
Mass Change in Oil 3 after 70 hr. 212˚F Mass Change, max.	45%	ASTM D471

Install the elastomeric strip seal gland with tools and a lubricant adhesive recommended by the manufacturer.

Furnish manufacturer's certification for production of polychloroprene represented showing test results for the cured material supplied and certifying that it meets all specified requirements.

The steel extrusion or retainer shall conform to ASTM designation A 709 grade 36 steel. After fabrication, steel shall be galvanized conforming to the requirements ASTM A123.

Manufacturer's certifications for adhesive and steel shall attest that the materials meet the specification requirements.

stp-502-020 (20210113)

83. Bar Steel Reinforcement HS Stainless Structures, Item 505.0800.S.

A Description

This special provision describes furnishing and placing stainless steel reinforcing bars and associated stainless steel bar couplers.

Conform to standard spec 505 as modified in this special provision.

B Materials

B.1 General

Furnish stainless steel reinforcing bars conforming to ASTM A955 and to one of the following Unified Numbering System (UNS) designations: S31653, S31803, S32205, or S32304. Supply grade 60 bars, all of the same UNS designation. Conform to the chemical composition specified for the given UNS designation in ASTM A276 table 1.

Supply bars that are free of dirt, mill scale, oil, and debris by pickling to a bright or uniform light finish. The department may reject bars displaying rust/oxidation, questionable blemishes, or lack of a bright or uniform pickled surface.

Furnish chairs or continuous supports made of stainless steel or recycled plastic to support high-strength stainless bar steel reinforcement subject to the plastic chair restriction stated in standard spec 505.3.4(1).

Furnish couplers made from one of the UNS alloys allowed for bar steel.

Furnish tie wire made from one of the UNS alloys allowed for bar steel or from an engineer-approved plastic or nonmetallic material. Ensure that stainless steel tie wire is dead soft annealed.

B.2 Fabrication

Before fabrication, supply test results from an independent testing agency certifying that the reinforcement meets the requirements of Annex A1 of ASTM A955.

Bend bars conforming to standard spec 505.3.2 and according to ASTM A955. Bend and cut bars using equipment thoroughly cleaned or otherwise modified to prevent contamination from carbon steel or other contaminants. Use tools dedicated solely to working with stainless steel.

B.3 Control of Material

Identify reinforcement bars delivered to the project site with tags bearing the identification symbols used in the plans. Include the UNS designation, heat treat condition, heat number, grade corresponding to minimum yield strength level, and sufficient documentation to track each bar bundle to a mill test report.

Provide samples for department testing and acceptance according to CMM 8-50 Exhibit 1 requirements for concrete masonry reinforcement for uncoated bar steel.

Provide mill test reports for the project that do the following:

1. Verify that sampling and testing procedures and test results conform to ASTM A955, ASTM A276 table 1, and these contract requirements.
2. Include a chemical analysis with the UNS designation, heat lot identification, and the source of the metal.
3. Include tensile strength, yield strength, and elongation tests results conforming to ASTM A955 for each size furnished.
4. Certify that the bars have been pickled to a bright or uniform light finish.

C Construction

C.1 General

Ship, handle, store, and place the stainless steel reinforcing as follows:

1. Separate from regular reinforcement during shipping. Pad points of contact with steel chains or banding, or secure with non-metallic straps.
2. Store on wooden cribbing separated from regular reinforcement. Cover with tarpaulins if stored outside.
3. Handle with non-metallic slings.
4. Do not flame cut or weld. Protect from contamination when cutting, grinding, or welding other steel products above or near the stainless steel during construction.
5. Place on plastic or stainless steel bar chairs. If placing stainless steel chairs on steel beams, use chairs with plastic-coated feet.
6. Tie with stainless steel wire or an engineer-approved plastic or nonmetallic material.

Do not tie stainless steel reinforcing bars to, or allow contact with, uncoated reinforcing bars or galvanized steel. Maintain at least 1 inch clearance between stainless steel bars or dowels and uncoated or galvanized steel. Where 1 inch clearance is not possible, sleeve bars with a continuous polyethylene or nylon tube at least 1/8 inch thick extending at least 1 inch in each direction and bind with nylon or polypropylene cable ties. Sleeves are not required between stainless steel bars and shear studs. Stainless steel bars can be in direct contact with undamaged epoxy-coated bars.

Cut flush with the top flange or remove uncoated fasteners, anchors, lifting loops, or other protrusions into a bridge deck before casting the deck on prestressed concrete beams.

C.2 Splices

Splice as the plans show. Provide stainless steel couplers conforming to the minimum capacity, certification, proof testing, and written approval requirements of standard spec 550.3.3.4. The contractor may substitute stainless steel couplers for lap slices the plans show if the engineer approves in writing.

If increasing or altering the number or type of bar splices the plans show, provide revised plan sheets to the engineer showing the reinforcement layout, type, length, and location of revised bar splices and revised bar lengths. Obtain engineer approval for the location of new lap splices or substitution of mechanical bar couplers before fabrication. Ensure that new lap splices are at least as long as those the plans show.

D Measurement

The department will measure Bar Steel Reinforcement HS Stainless Structures by the pound, acceptably completed, computed from the nominal weights of corresponding sizes for carbon steel deformed bars in AASHTO M31 regardless of stainless steel alloy provided. The department will not measure extra material used if the contractor alters the reinforcement layout as allowed under C.2, extra material for splices or couplers the plans do not show, or the weight of devices used to support or fasten the steel in position.

The department will measure the Bar Couplers Stainless bid items as each individual coupler, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
505.0800.S	Bar Steel Reinforcement HS Stainless Structures	LB

Payment for Bar Steel Reinforcement HS Stainless Structures is full compensation for furnishing and placing stainless steel reinforcing bars, including supports. Where the plans specify bar couplers, the department will pay for the length of bars as detailed with no deduction or increase for installation of the coupler.

Payment for the Bar Couplers Stainless bid items is full compensation for providing couplers; including bar steel that is part of the coupler and not detailed in the plan; for threading reinforcing bars; for installing and coating the splice; and for supplying and testing 3 couplers.

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84. Polymer Overlay, Item 509.5100.S.

A Description

This special provision describes providing two layers of a two-component polymer overlay system to the bridge decks the plans show.

B Materials

B.1 General

Furnish materials specifically designed for use over concrete bridge decks. Furnish polymer liquid binders from the department’s approved product list.

B.2 Polymer Resin

Furnish a polymer resin base and hardener composed of two-component, 100 percent solids, 100 percent reactive, thermosetting compound with the following properties:

Property	Requirements	Test Method
Gel Time[1]	15 - 45 minutes @ 73° to 75° F	ASTM C881
Viscosity[1]	7 - 70 poises	ASTM D2393, Brookfield RVT, Spindle No. 3, 20 rpm
Shore D Hardness[2]	60-75	ASTM D2240
Absorption[2]	1% maximum at 24 hr	ASTM D570
Tensile Elongation[2]	30% - 70% @ 7 days	ASTM D638
Tensile Strength[2]	2000 to 5000 psi @ 7 days	ASTM D638
Chloride Permeability[2]	<100 coulombs @ 28 days	AASHTO T277

[1] Uncured, mixed polymer binder

[2] Cured, mixed polymer binder

Ensure that the polymer resin when mixed with aggregate has the following properties:

Property	Requirement[1]	Test Method
Minimum Compressive Strength	1,000 psi @ 8 hrs 5,000 psi @ 24 hrs	ASTM C579 Method B, Modified[2]
Thermal Compatibility	No Delaminations	ASTM C884
Minimum Pull-off Strength	250 psi @ 24 hrs	ASTM C1583

[1] Based on samples cured or aged and tested at 75°F

[2] Plastic inserts that will provide 2-inch by 2-inch cubes shall be placed in the oversized brass molds.

B.3 Aggregates

Furnish natural or synthetic aggregate that is non-polishing; clean; free of surface moisture; fractured or angular in shape; free from silt, clay, asphalt, or other organic materials; and conform to the following:

Aggregate Properties

Property	Requirement	Test Method
Moisture Content[1]	1/2 of the measured aggregate absorption, %	ASTM C566
Hardness	≥6.5	Mohs Scale
Fractured Faces	100% with at least 1 fractured face & 80% with at least 2 fractured faces of material retained on No.16	ASTM D5821
Absorption	≤1%	ASTM C128

[1] Sampled and tested by the department before placement.

Gradation

Sieve Size	% Passing by Weight
No. 4	100
No. 8	30 – 75
No. 16	0 – 5
No. 30	0 – 1

B.4 Approval of Bridge Deck Polymer Overlay System

A minimum of 20 working days before application, submit product data sheets and specifications from the manufacturer, and a certified report of test or analysis from an independent laboratory to the engineer for approval. The department will sample and test the aggregates for gradation and moisture content before placement. If requested, supply the department with samples of the polymer for the purpose of acceptance testing.

B.4.1 Product Data Sheets and Specifications

Product data sheets and specifications from the manufacture consists of literature from the manufacturer showing general instructions, application recommendations/methods, product properties, general instructions, or any other applicable information.

B.4.2 Certified Report of Test or Analysis

Conform to the following:

Polymer Binder: Submit a certified report of test or analysis from an independent laboratory dated less than 3 years before the date of the project letting showing the polymer binder meets the requirements of section B.2.

Aggregates: Submit a certified report of test or analysis from an independent laboratory dated less than 6 months before the date of the project letting showing the aggregates meet the requirements of section B.3.

C Construction

C.1 General

Ensure that the overlay system is 1/4 inch thick or thicker.

Conform to the following:

Field Review: Conduct a field review of the existing deck to identify any possible surface preparation and material compatibility issues.

Pre-Installation Meeting: Conduct a pre-installation meeting with the manufacturer's representative and the engineer before construction. Discuss the field review findings, verification testing of the surface preparation and establish procedures for maintaining optimum working conditions and coordination of work. Furnish the engineer a copy of the recommended procedures and apply the overlay system according to the manufacturer's instructions. Supply for the engineer's use for the duration of the project, a Concrete Surface Profile (CSP) chip set of 10 from the International Concrete Repair Institute (ICRI).

Manufacturer's Representative: An experienced manufacturer's representative familiar with the overlay system installation procedures shall be present at all times during surface preparation and overlay placement to provide quality assurance that the work is being performed properly. This requirement may be reduced at the engineer's discretion.

Material Storage: Store and handle materials according to the manufacturer's recommendations. Store resin materials in their original containers in a dry area. Store all aggregates in a dry environment and protect aggregates from contaminants on the job site.

C.2 Deck Preparation

C.2.1 Deck Repair

Remove all asphaltic patches and unsound or disintegrated areas of the concrete decks as the plans show, or as the engineer directs. Work performed to remove and repair the concrete deck will be paid for under other items.

Use deck patching products that are compatible with the overlay system. Patching materials with magnesium phosphate shall not be used. Place patches after surface is prepared via shot blasting and cleaning as described in Section C.2.2 of this specification. Portland cement concrete patches shall be used for joint repairs and full depth deck repairs with a plan area larger than 4 sf, unless approved otherwise by the Structures Design Section. If rapid-set concrete is used, place patches per the manufacturer's recommendation. If Portland cement concrete is used, place patches per standard spec 509.3.9.1.

Deck patching shall be filled and properly finished prior to overlay placement. Do not place overlay less than 1 hour, or per the manufacturer's recommendation, after placing rapid-set concrete patches in the repair areas. Do not place overlay less than 28 days after placing Portland cement concrete patches in the repair areas.

C.2.2 Surface Preparation

Determine an acceptable shotblasting machine operation (size of shot, flow of shot, forward speed, and/or number of passes) that provides a surface profile meeting CSP 5 (medium-heavy shotblast) according to the ICRI Technical Guideline No. 310.2. If the engineer requires additional verification of the

surface preparation, test the tensile bond strength according to ASTM C1593. The surface preparation will be considered acceptable if the tensile bond strength is greater than or equal to 250 psi or the failure area at a depth of 1/4 inches or more is greater than 50 percent of the test area. Continue adjustment of the shotblasting machine and necessary testing until the surface is acceptable to the engineer or a passing test result is obtained.

Prepare the entire deck using the final accepted adjustments to the shotblasting machine as determined above. Thoroughly blast clean with hand-held equipment any areas inaccessible by the shotblasting equipment. Do not perform surface preparation more than 24 hours before the application of the overlay system.

Protect drains, expansion joints, access hatches, or other appurtenances on the deck from damage by the shot and sand blasting operations and from materials adhering and entering. Tape or form all construction joints to provide a clean straight edge.

Before shot blasting, remove pavement markings within the treatment area using an approved mechanical or blasting method.

Prepare the vertical concrete surfaces adjacent to the deck a minimum of 2” above the overlay according to SSPC-SP 13 (free of contaminants, dust, and loose concrete) by sand blasting, using wire wheels, or other approved method.

Just before overlay placement, clean all dust, debris, and concrete fines from the prepared surfaces including the vertical surfaces with compressed air. When using compressed air, the air stream must be free of oil. Any grease, oil, or other foreign matter that rests on or has absorbed into the concrete shall be removed completely. If prepared surfaces (including the first layer of the polymer overlay) are exposed to rain or dew, lightly sandblast (brush/breeze blast) the exposed surfaces.

The engineer may consider alternate surface preparation methods per the overlay system manufacture’s recommendations. The engineer will approve the final surface profile and deck cleanliness before the contractor placing the polymer overlay.

C.2.3 Transitional Area

If the plans show, create a transitional area approaching transverse expansion joints and ends of the deck using an approved mechanical or blasting method. Remove 1/4 inch to 5/16 inch of concrete adjacent to the joint or end of deck and taper a distance of 3 feet.

If the plans show, create a transitional area on the approach pavement. Prep and place the first lift 3 feet beyond the end of the deck the same width as the deck. Prep and place the second lift 6 feet beyond the end of the deck the same width as the deck.

C.3 Overlay Application

Perform the handling and mixing of the polymer resin and hardening agent in a safe manner to achieve the desired results according to the manufacturer’s instructions. Do not apply the overlay system if any of the following exists:

1. Ambient air temperature is below 50 F or above 100 F.
2. Deck temperature is below 50 F.
3. Moisture content in the deck exceeds 4.5 percent when measured by an electronic moisture meter or shows visible moisture after 2 hours when measured in accordance with ASTM D4263.
4. Rain is forecasted during the minimum curing periods listed under C.5.
5. Materials component temperatures below 65 F or above 99 F.
6. Concrete deck age is less than 28 days.
7. The deck temperature exceeds 100 F.
8. If the gel time is 10 minutes or less at the predicted high air temperature for the day.

After the deck has been shotblasted or during the overlay curing period, only necessary surface preparation and overlay application equipment will be allowed on the deck. Provide appropriate protective measures to prevent contamination from equipment allowed on the deck during preparation and application operations. Begin overlay placement as soon as possible after surface preparation operations.

The polymer overlay shall consist of a two-course application of polymer and aggregate. Each of the two courses shall consist of a layer of polymer covered with a layer of aggregate in sufficient quantity to completely cover the polymer. Apply the polymer and aggregate according to the manufacturer’s requirements. Apply the overlay using equipment designed for this purpose. The application machine shall feature positive displacement volumetric metering and be capable of storing and mixing the polymer

resins at the proper mix ratio. Disperse the aggregate using a method that provides a uniform, consistent coverage of aggregate and minimizes aggregate rolling or bouncing into final position. First course applications that do not receive enough aggregate before the polymer gels shall be removed and replaced. A second course applied with insufficient aggregate may be left in place, but will require additional applications before opening to traffic.

After completion of each course, cure the overlay according to the manufacturer's instructions. Follow the minimum cure times listed under C.5 or as prescribed by the manufacturer. Remove the excess aggregate from the surface treatment by sweeping, blowing, or vacuuming without tearing or damaging the surface; the material may be re-used if approved by the engineer and manufacturer. Apply all courses of the overlay system before opening the area to traffic. Do not allow equipment or traffic on the treated area until directed by the engineer.

After the first layer of coating has cured to the point where the aggregate cannot be pulled out, apply the second layer. Before applying the second layer, broom and blow off the first layer with compressed air to remove all loose excess aggregate.

Before opening to traffic, clean expansion joints and joint seals of all debris and polymer. A minimum of 3 days following opening to traffic, remove loosened aggregates from the deck, expansion joints, and approach pavement.

C.4 Application Rates

Apply the polymer overlay in two separate courses in accordance with the manufacturer's instructions, but not less than the following rate of application.

Course	Minimum Polymer Rate[1] (GAL/100 SF)	Aggregate[2] (LBS/SY)
1	2.5	10+
2	5.0	14+

[1] The minimum total applications rate is 7.5 GAL/100 SF.

[2] Application of aggregate shall be of sufficient quantity to completely cover the polymer.

C.5 Minimum Curing Periods

As a minimum, cure the coating as follows:

	Average temperature of deck, polymer and aggregate components in degrees F							
Course	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-99
1	6 hrs.	5 hrs.	4 hrs.	3 hrs.	2.5 hrs	2 hrs	1.5 hrs.	1 hr.
2	8 hrs.	6.5 hrs.	6.5 hrs.	5 hrs.	4 hrs.	3 hrs.	3 hrs.	3 hrs.

If faster cure times are desired and achievable, submit to the engineer a certified test report from an independent laboratory showing the material is able to reach a compressive strength of 1000 psi as tested per ASTM C 579 Method B within the temperature ranges and cure times for which the product is proposed to be placed. Establish ambient air, material, and substrate temperatures from the manufacturer for field applications. Field applications will not be allowed below the documented temperatures.

C.6 Repair of Polymer Overlay

Repair all areas of unbonded, uncured, or damaged polymer overlay for no additional compensation. Submit repair procedures from the manufacturer to the engineer for approval. Absent a manufacturer's repair procedures and with the approval of the engineer, complete repairs according to the following: Saw cut the limits of the area to the top of the concrete; remove the overlay by scarifying, grinding, or other approved methods; shot blast or sand blast and air blast the concrete before placement of polymer overlay; and place the polymer overlay according to section C.3.

D Measurement

The department will measure Polymer Overlay by the square yard, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
509.5100.S	Polymer Overlay	SY

Payment is full compensation for preparing the surface; for tensile bond testing; for creating the transitional area; for providing the overlay; for cleanup; and for sweeping/vacuuming and disposing of excess materials.

The department will pay separately for deck repairs.

stp-509-030 (20200629 w/revision)

85. Noise Barriers Double-Sided Sound Absorptive N-40-101, Item 541.0300.S.0019.

A Description

This special provision describes designing, fabricating, transporting, and erecting composite concrete double-sided sound absorptive noise barriers as the plans show and conforming to department-approved installation specifications.

B Noise Wall System

B.1 System Pre-Qualification and Selection

The noise wall system supplied must be pre-qualified by the department. The department maintains a list of pre-qualified systems which can be viewed online at:

https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/default.aspx

Systems eligible for use on this project shall be pre-qualified before the award of this contract.

Provide the name of the selected system, and the intended fabricator to the engineer within 25 days after award of the contract. Schedule a pre-design meeting with the engineer subsequent to award of the contract and before beginning design of the noise barrier. A representative of the fabricator of the noise barrier components shall attend this meeting.

B.2 Design

B.2.1 Structural and Foundation Design

The structural and foundation design of the noise barrier system shall conform to the current edition of "AASHTO LRFD Bridge Design Specifications" published by the American Association of State Highway and Transportation Officials (AASHTO), 444 North Capitol Street, NW, Suite 225, Washington, DC 20001, with the following exceptions:

The minimum design wind pressure shall be 35 pounds per square foot (Strength III) for ground mounted noise barriers and 40 pounds per square foot (Strength III) for structure mounted noise barriers, unless specified otherwise on the plans. For ground and structure mounted noise barriers, the minimum Service I design wind pressure shall be 15 pounds per square foot. All wind loads shall be applied perpendicular to the barrier, alternately in each direction.

Design drilled shaft foundations using the Broms Method. Ignore the top 1 foot of supporting soil in the design of ground-mounted barrier foundations.

In addition to wind loads, design the bottom noise barrier panel to support the dead load (weight) of the panels directly above it and its own dead load. Assume this dead load to be distributed uniformly across the bottom panel acting as a simple beam supported at the posts.

Bottom noise barrier panels shall have a minimum amount of perimeter reinforcement of a #4 bar which shall be continuous around the corners. Reinforcing steel in the concrete core of noise barrier panels shall have a minimum clear cover of 1 inch. Clear cover does not include sound absorptive material. Design the reinforced concrete core to resist the loads without considering any composite action from other material in the panel.

Provide a neoprene bearing pad or equivalent material of 1/4 inch minimum thickness between the foundation and the bottom panels. The allowable bearing stress shall not exceed 900 psi. Precast concrete pedestals placed between the foundation and bottom panels shall be reinforced if over 1’-0" high. The bearing pads shall be preformed EPDM rubber conforming to ASTM D-2000, Grade 2, Type A, Class A with a minimum Durometer Hardness of 80.

B.2.2 Fire Hose Access Openings

Design fire hose access openings, at locations the plans show, with additional reinforcement and clear cover around the opening as necessary to maintain structural integrity. Detail drawings shall show the additional reinforcement and method for attaching the Fire Hydrant Location Signs to the barrier panel.

B.2.3 Barrier Profile

Unless the plans show or the engineer approves otherwise, design the top of the noise barrier to be horizontal and at or above the acoustic elevation line the plans show. The bottom elevation of the noise barrier shall be as the plans show. Changes in elevation shall be accomplished by stepping sections at posts. Steps shall not exceed 3-feet in height. All joints shall be horizontal or vertical and shall be aligned with the adjacent panels.

B.2.4 Panel Orientation

Design the panels to prevent entrapment and ponding of water. Avoid inadvertently providing areas for perching, nesting of birds or collecting of dirt and debris in the design of the noise barrier system.

B.2.5 Sound Transmission Loss (TL)

Design the noise barrier panel material to achieve a transmission loss equal to or greater than 20 decibels in all test frequency bands, as referenced in ASTM E90.

B.2.6 Noise Reduction Coefficient (NRC)

Design the noise barrier system so that the highway sides of the noise barrier panels have a minimum NRC of 0.80 and the residential sides have a minimum NRC of 0.70 as referenced in ASTM C423.

B.2.7 Design Coordination

Design the noise barrier post spacing so as not to interfere with the existing utility and drainage facilities.

Design the noise barrier post spacing so as not to interfere with proposed utility and drainage facilities the plans show. This includes proposed roadway lighting and ITS facilities.

For noise barriers mounted behind or near proposed retaining walls, coordinate and design the noise barrier post spacing so as to not interfere with embedded portion of the proposed retaining walls, including MSE wall soil reinforcement and tieback anchors on soldier pile and timber lagging retaining walls.

For noise barriers mounted on proposed bridges and retaining walls, coordinate and design the noise barrier post spacing to coincide with noise barrier post and embedded noise barrier anchor assembly spacing shown on the bridge and retaining wall plans. Coordinate any required changes to the noise barrier post spacing and embedded noise barrier anchor assembly locations shown on the bridge and retaining wall plans, if required for the design of the noise barrier.

B.2.8 Weep Hole Openings

Design panels such that weep hole openings in noise wall to allow water to drain can be field installed per C.3 at locations the plans show.

B.2.9 Maintenance Doors

Design maintenance doors and door portals in noise walls, at locations the plans show, with additional reinforcement and clear cover around the opening as necessary to maintain structural integrity per B.2.1.

B.3 Materials

Required material certifications and testing are the responsibility of the contractor. All certifications and test reports shall carry the name and address of the fabrication facility where the specific material was produced.

B.3.1 Concrete Masonry

Provide grade A concrete conforming to standard spec 501 as modified in standard spec 716 for concrete posts and the core component of composite concrete sound absorbing panels. Provide QMP for class II ancillary concrete as specified in standard spec 716.

B.3.2 Materials Testing General

All test reports shall carry the name and address of the laboratory where testing was performed, and the name of the person in responsible charge of the specific tests for which data is presented. Materials tested shall be representative of materials manufactured for this specific contract. Panels tested or from

which samples will be taken will be selected and appropriately marked by the engineer either at the manufacturer's plant or from panels delivered to the project at the engineer's option.

Testing as detailed below is required for each lot of material not to exceed 100,000 SF of noise barrier produced. Conduct testing on panels within the first 30,000 SF of production of each lot not exceeding 100,000 SF. For projects that do not exceed 100,000 SF, a minimum of two lots of material will represent the project, each lot representing equivalent square footage. The first set of tests conducted for projects that do not exceed 100,000 SF shall be within the first third of the total square footage of the project. Provide the shipping record of the samples to the laboratory within five days of sampling. Begin testing as soon as practicable after sampling.

Test all materials as fabricated, including any specified finishing.

B.3.2.1 Noise Reduction Coefficient (NRC)

Test noise barrier panels according to ASTM C423, and placed according to ASTM E795, mounting type A, to determine the noise reduction coefficient (NRC) of the material. Submit to the engineer an independent laboratory test report that shows that the noise barrier panels achieve an NRC as specified in B.2.6 for the highway side of the barrier.

B.3.2.2 Long-term Durability

Test all sound absorbing composite concrete and composite concrete components for long-term durability according to ASTM C672 and the following modifications and/or requirements:

B.3.2.2.1 Test Specimens

Three specimens of a full cross section of the composite panel at least 144 square inches in face area will be selected at random from the provided composite panel as defined in B.3. Sample specimens shall be representative of the manufacturer's continuous production operation, as selected and marked by the engineer. Specimens shall be 2D-symmetric and shaped according to the testing laboratory's accommodations.

Prepare the surfaces of the sample specimens for testing as follows. Brush the surfaces of the sample to remove any loose particles. Before testing, submerge the test specimens be submerged in water for a period of 24 hours before testing. Immediately following this, cover the specimens with the sodium chloride solution as stated below.

B.3.2.2.2 Test Procedure

Place samples in a 5 sided water tight container, fully submerged in a solution of sodium chloride (concentration 3% by mass). Maintain 1/4 inch of sodium chloride solution above the top surface of the fully submerged specimen within the container.

Subject the submerged specimens to continuous freeze-thaw cycles as follows:

After each five cycles, remove the salt solution and particles of deteriorated concrete from the slab and collect in a watertight container. The operation is best accomplished by tilting the slab in a funnel approximately 20 inches in diameter and washing the surface of the slab with a 3% sodium chloride solution. Continue this washing until all loose particles are removed from the sample. Strain the solution through a filter and dry the residue at 221 degrees Fahrenheit to a constant mass condition. Cumulatively weigh the residue after each five cycles. The dry residue is defined as the loss of mass. Calculate the loss of mass to the nearest 0.01 pounds per square foot, not including the exposed surface of any core material on the cast or cut edges. Visually rate the surfaces according to 10.1.5 of ASTM C672 including any delamination of the sound absorbing material from the concrete core for composite concrete materials. After each washing of each sample, re-establish the initial submerged condition with a new solution of 3% sodium chloride before continuing with freeze-thaw cycling.

Continue the test until 30 freeze-thaw cycles have been completed.

During the test position and support each specimen to allow free circulation of the test solution under, around, and over test pieces. Support the bottom of the specimens on blocks in a manner to facilitate movement of moisture through and around the test specimens.

B.3.2.2.3 Test Report

Submit to the engineer an independent testing laboratory test report which shows that all solid and composite concrete products meet or exceed the following criteria:

1. After 30 freeze-thaw cycles the test specimens shall not exhibit excessive deterioration in the form of cracks, spalls, aggregate disintegration, delamination or other objectionable features.

2. Compliance with the test requirements is based upon a loss of mass of not more than 0.2 pounds per square foot from the surface after 30 cycles of freezing and thawing.
3. The report shall include the following:
    3.1. Name of manufacturer.
    3.2. Location of production.
    3.3. Production description.
    3.4. Date product sample was cast.
    3.5. Date testing began.
    3.6. Specimen identification.
    3.7. 5x7-inch color photographs of the test specimens before and after the 30 cycles of freeze-thaw test showing both sound absorbing faces and at least one representative side view of a cut (not cast) face, and any defects.
    3.8. A graph of the cumulative mass loss of each specimen plotted against the number of freeze-thaw cycles for 5, 10, 15, 20, 25, and 30 freeze-thaw cycles.
    3.9. Visual rating according to ASTM C672 Section 10.1.5, including report of any delamination of the sound absorbing material from the concrete core for composite concrete components.

B.3.3 Materials Certification - General

Provide certification of compliance or sample fabrications as noted below. All material certifications shall reference the specific facility manufacturing the material and this contract. Certification is required for each lot of material not to exceed 100,000 SF of noise barrier produced, and shall include dates of fabrication for the lot being certified. For projects that do not exceed 100,000 SF, a minimum of two lots of material will represent the project, each lot representing equivalent square footage.

B.3.3.1 Color and Surface Texture

Supply and deliver to the engineer a 3 foot x 5 foot minimum test panel for each panel type with the specified pattern and colors. Obtain the engineer's acceptance of the panel's pattern and color before production of the panels required for the contract. The accepted pattern and color test panels shall remain on the project site in a readily accessible location for the duration of the project. The accepted pattern and color sample panels will be the standard for all noise barriers on the project.

Manufacture noise barrier posts of the same materials throughout the project. Shop apply coating and coloring of the post and panels.

Unless otherwise shown and provided for in the plans, wall pattern shall contain textures with relief features of sufficient depth and quantity to be distinguishable at an observation distance of 500-feet. The colors and textures chosen will be within the following parameters; however, at the discretion of the engineer, a single color and/or a single texture may be selected for either side of the noise barrier.

	FREEWAY SIDE	RESIDENTIAL SIDE
Number of colors	2	2
In the proportion of	75:25 (+/- 5%)	75:25 (+/-5%)
Number of textures	2	2
In the proportion of	75:25 (+/- 5%)	75:25 (+/- 5%)

Noise barrier wall panels are to be plain concrete with no stain or paint.

The engineer will visually inspect panels for color consistency upon arrival at the project. The panels shall have no substantial variation in color from the accepted sample panel submitted for the project. All panels with substantial color variation will be rejected and shall be removed from the project.

B.3.3.2 Structural Steel

Submit to the engineer certification of compliance, including mill certifications and heat numbers, that structural steel conforms to the properties required on the plans and shop drawings, and is galvanized after fabrication by the hot-dip process according to ASTM A123. Galvanize all steel hardware and threaded fasteners, bolts, nuts, and washers according to ASTM A153.

Shop coat all steel galvanized surfaces exposed to view with a department-approved paint system. Clean galvanizing surfaces to be painted according to SSPC-SP1 to remove, chlorides, sulfates zinc salts, oil, dirt, organic matter and other contaminants. Brush Blast clean the surfaces according to SSPC-SP7 to create a slight angular surface profile (1.0 – 1.5 mils suggested) for adhesion. Do not fracture the galvanized finish or remove any dry film thickness during these processes.

After cleaning, provide a tie coat from an approved coating system that is specifically intended to be used on a galvanized surface. The tie coat shall etch the galvanized surface and prepare the surface for the top coat. Apply a top coat matching the finished color specified in B.3.2. Use a pre-approved top coat that is resistant to the effects of the sun, and is suitable for use in a marine environment. Exercise care so as not to damage the painted surfaces during shipment and erection of the noise barriers.

Use one of the qualified paint sources and products given below. An equivalent system may be used with the written approval of the engineer. Supply the engineer with the product data sheets before applying any coating. The product data sheets shall indicate the mixing and thinning directions, the recommended spray nozzles and pressures, the minimum drying time for shop applied coats, and the recommended procedures for coating galvanized bolts, nuts, and washers.

Producer	Coat	Products	Dry Film Minimum Thickness (mils)	Minimum Time Between Coats (hours)
Sherwin Williams Co. (847) 330-1250	Tie	Recoatable Epoxy Primer B67-5 Series/B67V5	2.0 to 4.0	6
	Top	Acrolon 218 HS Polyurethane, B65-650	2.0 to 4.0	NA
Carboline Co. (314) 644-1000	Tie	Rustbond Penetrating Sealer FC	1	36
	Top	Carboline 133 LH	4	NA
Wasser Corp. (253) 850-2967	Tie	MC-Ferrox B 100	3.0 to 5.0	8
	Top	MC-Luster 100	2.0 to 4.0	NA

B.3.3.3 Sound Transmission Loss (TL)

Submit to the engineer certification of compliance that the sound transmission loss of the panel material, when tested according to ASTM Standard E90, achieves a transmission loss as specified in B.2.5.

B.3.3.4 Accelerated Weathering

Submit to the engineer certification of compliance that all coatings on barrier components, with the exception of structural steel and wood components comply with the following requirements when tested according to ASTM Standard G155, G153, or G152 after 2400 hours of exposure on a cement based test specimens:

1. No checking when rated according to ASTM D660.
2. No cracking when rated according to ASTM D661.
3. No blistering when rated according to ASTM D714.
4. No difference in adhesion between the unexposed control sample and an exposed sample when tested according to ASTM D3359, Method A.
5. No chalking less than #7 rating when rated according to ASTM D4214.
6. No color change greater than 5 NBS units when measured according to ASTM D2244, using illuminant D65 and the 1964 10-degree standard observer.

B.3.3.5 Corrosion Resistance (Salt Fog Exposure)

Submit to the engineer certification of compliance that all coated steel components, with the exception of structural steel, has a coating system that has been tested for corrosion resistance according to ASTM B117 and comply with the following requirements:

1. No checking when rated according to ASTM D660.
2. No blistering when rated according to ASTM D714.
3. No loss of adhesion when tested according to ASTM D3359 with no evidence of corrosion along the edges of the samples or along the score lines, or both, or other defects.

B.4 Project Submittal Requirements

Furnish required submittals according to the following:

B.4.1 Pre-Construction Submittals

A minimum of 14 days before beginning any shop or field work, submit the following documents to the engineer conforming to standard spec 105.2 with electronic submittal to the fabrication library under standard spec 105.2.2.

1. Structural and foundation design calculations

   Design calculations shall be on 8 1/2 x 11-inch sheets, neatly bound with a title sheet listing the complete project identification number and sound barrier designation. Structural and foundation calculations shall be signed, sealed and dated by a professional engineer licensed in the State of Wisconsin.

2. Detailed design/shop drawings

   Design/shop drawings shall conform to the contract plans and the requirements of these special provisions. The design/shop drawings shall consist of plan and profile sheets, details, explanatory notes, erection diagrams, aesthetic treatments, and other working plans. All dimensions, sizes of material, material information and other information necessary for the complete fabrication and construction of the noise barrier shall be designated on the appropriate sheets. The design/shop drawings shall be drawn to an appropriate scale on reproducible sheets 11 x 17 inches including borders. Each sheet shall carry the complete project identification number and noise barrier designation. Design/shop drawings shall be signed, sealed and dated by a professional engineer licensed in the State of Wisconsin.

3. Specifications regarding installation requirements and sequence of construction, including a detailed bill of materials.
4. Detailed color plan of the aesthetic treatments and finishes for the entire noise barrier.
5. Shipping, handling, and storage plan identifying methods or practices to limit post production damage.

Department review does not relieve the contractor from responsibility for errors or omissions on shop drawings.

B.4.2 Pre-Installation Submittals

Supply and deliver to the engineer the sample panel required under Section B.3.3.1 at least 14 calendar days before beginning production and/or installation of job materials. Acceptance of the sample panel will be by: Heather Sackman, 414-750-3233. If the panel is not acceptable, a second panel shall be produced and submitted for acceptance. Sample panel to be representative of quality for precast panel work after acceptance. Deliver test panels to project's construction field office, for comparison purposes during production of project panels.

B.4.3 Payment Submittals

Submit certifications and test data as required under B.3 for all materials, including trade name of the products along with the name and address of the manufacturers.

B.4.4 Submittal Review

The engineer's review and acceptance of the drawings, calculations, and related material, submitted by the contractor, is for compliance with design intent only, and does not relieve the contractor from responsibility in regard to errors or omissions on said submittals.

The final accepted design documents and/or shop drawings will become a part of the contract. Any substitution of materials or dimensions contemplated by the contractor's submitted documents, different from materials or dimensions shown on the contract plans, shall be made only when approved by the engineer, and in such case, additional costs resulting from such substitution shall be borne by the contractor.

Ordering materials before department acceptance of submittals is at the contractor's risk.

C Construction

C.1 General

Construct the noise barriers at the locations the plans show, according to the contract specifications and design drawings and/or as the engineer directs. Deliver all sound absorbing composite concrete components to the project site as a finished component. A sound absorbing composite concrete system, which has the sound absorbing material glue-laminated or alternately affixed by a secondary adhesion method on the project site, will not be allowed.

Provide a minimum ten day notice to the engineer of the date that the fabrication of the noise barrier material will begin.

Inspect all materials delivered to the construction site for proper dimensions, honeycombing, cracks, voids, surface defects, consistency in color and texture, and any other damage or imperfections, before installation.

If any part of the noise barrier material fails to comply with any requirements of the contract specification, the component shall either be corrected, permanently marked as unacceptable and be disposed of by the contractor or accepted at a reduced price. The decision will be made by the engineer and is dependent on the severity of the specification deviation.

Erect noise barriers to avoid conflict with any existing facilities or utilities to remain in place. Any damage caused by construction activities shall be repaired by the contractor at no cost to the department.

C.2 Fire Hydrant Location Signs

Attach fire hydrant location signs to the noise barrier at each location the plans show by a method the department's approved drawings show. The signs shall conform and be of the type specified in the department's sign plate book, plate D9-54 and/or D9-54A.

Compensation for furnishing and placing the fire hydrant location signs shall be included in the contract price for Noise Barriers Double-Sided Sound Absorptive and no additional compensation therefore will be allowed.

C.3 Weep Hole Openings

Provide weep hole openings for drainage at the locations and sized as noted on the plan. Install weep holes by drilling through the wall after erection of the noise barrier. Use 6" PVC Schedule 40 pipe sleeve conforming to ASTM D-1785. Epoxy 6" PVC Schedule 40 pipe sleeve into bored weep hole. PVC pipe sleeve shall fit snugly in cored hole through wall. Epoxy PVC pipe sleeve into bored weep hole in noise barrier. Locate and construct weep holes according to the plans and as the engineer directs. Place weep holes at locations the plans show unless the engineer approves adjusting locations to fit field conditions. The engineer will field verify the height and location of the weep hole for positive drainage.

C.4 Name Plates

Provide name plates conforming to the requirements of standard spec 506.2.4. Install one name plate on each noise barrier at the location the plans show. Rigidly attach each plate to the barrier by a means approved by the engineer.

Compensation for furnishing and placing of name plates shall be included in the contract price for Noise Barriers, Double-Sided Sound Absorptive Structure and no additional compensation therefore will be allowed.

C.5 Structure Mounted Noise Barriers

Do not erect noise barriers mounted to bridge or retaining wall structures until after the concrete for bridge decks and parapets or retaining wall moment slabs and parapets have attained their specified 28-day strength.

For noise barriers mounted to moment slabs and parapets on top of MSE retaining walls, erection of the noise barrier is limited to two-thirds the height of the noise barrier acoustical line the plans show before placement of earth fill or pavement over the top of the moment slab as the plans show. Erection of the noise barrier in excess of two-thirds its height to the full height of the noise barrier acoustical line the plans show may not occur until after the earth fill or pavement structure over the top of the moment slab the plans show is complete.

C.6 Construction Tolerances

Install the posts and panels comprising the noise barrier plumb within 1/2 inch in 15-feet. Locate the posts to the line and grades as the plans show to within +/- 3/4 inch. Align horizontal joints of adjacent panels to a vertical tolerance of 1/4 inch. Where vertical adjustments are required for alignment, use a mortar base or steel shims. Galvanize and prime coat steel shims according to B.3.3.2.

D Measurement

The department will measure Noise Barriers Double-Sided Sound Absorptive (Structure #) by the square foot, acceptably completed, as the area the original plans show plus engineer-approved modifications to the plan quantity caused by plan corrections or revisions.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
541.0300.S.0019	Noise Barriers Double-Sided Sound Absorptive N-40-101	SF

Payment is full compensation for providing noise barrier including: coloring and aesthetic treatment on panels, preparing the design drawings and calculations, furnishing and delivering sample and test panels, materials testing, furnishing materials test reports and certifications, excavation, preparing the site, constructing foundations, erecting posts and panels, and disposing of waste materials.

stp-541-010 (20210708)

86. Driven Piles Using Pile Dynamic Analyzer

Where indicated in the structure plans, replace standard spec 550.3.6 with the following:

550.3.6 Driving Resistance

(1) Drive piles to the depths necessary to obtain the required driving resistance per the driving resistance determination method called for in the plans.

(2) Driving resistance will be developed from Pile Dynamic Analyzer (PDA) testing performed on the designated piles at each substructure unit as shown on the plans. The driving criteria will be given as blows per foot with hammer stroke and minimum penetration of the pile or as directed by the engineer.

The PDA test piles at each substructure unit are designated on the plans and will be monitored using a PDA. Pile installation for these test piles will be controlled by the PDA testing and the engineer per the Pile Dynamic Analyzer (PDA) Testing and Restrike Special Provision within this contract.

For the PDA driving resistance determination method, pile restrikes will be required per the PDA Testing and Restrike Special Provision, or as directed by the engineer. Accommodate a time delay in the pile driving sequence as defined in the PDA Testing Special Provision to allow the engineer time to develop the production pile driving criteria.

(3) If the required driving resistance is not met at the minimum tip elevation, driving shall continue until it is achieved. If the required driving resistance is achieved above the minimum tip elevation, driving shall continue until both the minimum tip elevation and required driving resistance criteria are met. If practical pile refusal is encountered prior to the minimum tip elevation, the engineer will determine if driving can be halted.

Where indicated in the structure plans, delete standard spec 550.3.7.

BOS (201901)

87. Catch Basins, Manholes, and Inlets.

Supplement standard spec 611.3.1 with the following:

Use a Grade "A" concrete for final adjustment of manhole cover. Provide a butyl rubber gasket or butyl rubber rope for joints of precast reinforced concrete manhole sections. Butyl Rubber gasket joint used for manholes conforms to 8.41.6 of the Standard Specification for Sewer and Water Construction in Wisconsin, latest Edition. Provide non-rocking covers for all drainage structures subject to traffic loading.

Submit shop drawings for all drainage structures. For structures where WisDOT standard detail drawings are not available, provide shop drawings prepared, verified and stamped by a professional engineer currently registered in the State of Wisconsin. Submit one electronic copy of shop drawings in portable document format for engineer's review two weeks before fabrication. Show clearly on shop drawings information for all pipe connections to the structure. The contractor is responsible for all errors of detailing and fabrication. The omission from the shop drawings of any pipe connection shall not relieve contractor of the responsibility of providing such materials, even though the shop drawings may have been reviewed and accepted by the engineer.

Supplement standard spec 611.3.2 with the following:

Conform to storm sewer concrete collar detail for storm sewer pipes to structure connections as shown on the plans.

Supplement standard spec 611.3.3 with the following:

Use monolithic concrete shimming as the plan shows for final adjustment of drainage structures located within the concrete pavement, concrete shoulders, concrete curb and gutter and concrete barrier wall.

Supplement standard spec 611.3.7 with the following:

Construct height adjustments of 4-inches or more with concrete grade rings. Never use grade rings less than 2-inches thick.

Replace standard spec 611.5.2 (1) with the following:

Payment for Catch Basins, Manholes, and Inlets bid items is full compensation for providing all submittals; materials, including all masonry, and concrete bricks, for Grade "A" concrete adjustments and monolithic concrete shimming; adjusting rings; conduit and sewer connections, steps, and other fittings; for providing and installing butyl rubber joints; for furnishing backfill, backfilling; all excavating, disposing of surplus material, and for cleaning out and restoring the work site; except that the department will pay for covers, including frames, grates and lids separately.

Cost of non-rocking covers for all drainage structures subject to traffic loading is incidental to new cover on proposed structure or reconstructing/adjusting manholes or inlets on existing structure.

88. Adjusting Manhole Covers.

This special provision describes adjusting manhole covers conforming to standard spec 611 as modified in this special provision.

Adjust manhole covers located in pavement areas in two separate operations. Initially, remove designated manhole covers along with sufficient pavement to permit installation of temporary cover plate over the opening. Fill the excavated area with asphaltic pavement mixture, which shall remain in place until contract milling and paving operations permit setting the manhole frames to grade. During the second phase, remove the asphaltic pavement mixture surrounding the manhole plus the temporary cover plate, and set the manhole cover to final grade. The department will measure and pay for the items of asphaltic pavement mixture, temporary cover plate, milling, and paving separately.

Revise standard spec 611.3.7 by deleting the last paragraph.

Set the manhole frames so that they comply with the surface requirements of standard spec 450.3.2.9. At the completion of the paving, a 6-foot straightedge shall be placed over the centerline of each manhole frame parallel to the direction of traffic. A measurement shall be made at each side of the frame. The two measurements shall be averaged. If this average is greater than 5/8 inches, reset the manhole frame to the correct plane and elevation. If this average is 5/8 inches or less but greater than 3/8 inches, the manhole frame shall be allowed to remain in place but shall be paid for at 50 percent of the contract unit price.

If the manhole frame is higher than the adjacent pavement, the two measurements shall be made at each end of the straightedge. These two measurements shall be averaged. The same criteria for acceptance and payment as above, shall apply.

stp-611-005 (20030820)

89. Adjusting Storm Sewer Structures.

Add the following text to 611.3.1 of the standard specs:

Remove covers and frames prior to milling. Cover openings with a Cover Plates Temporary of sufficient thickness to carry traffic and at a depth to accommodate the milling operations. Backfill excavated areas with an asphalt surface mix to an elevation that will match the adjacent pavement. Cover Plates Temporary will paid as separate contract bid item.

Add the following text to 611.3.7 of the standard specs:

The replacement of Grade A concrete when adjusting manhole covers in areas of bituminous resurfacing shall be to the top of the existing concrete base as shown on the detail for adjusting manhole covers. Use construction methods that conform to the requirements set forth in 611.3.3 of the standard specs.

Add the following text to 611.5 of the standard specs:

Removal and replacement of concrete pavement to accomplish the work shall be incidental to the cost of work. Removal and replacement of concrete curb and gutter will be paid for under items Removing Curb and Gutter and Concrete Curb and Gutter, 24-inch.

SER-611-001 (20161216)

90. Cover Plates Temporary, Item 611.8120.S.

A Description

This special provision describes furnishing, installing and removing a steel plate to cover and support asphaltic pavement and traffic loading at manholes, inlets and similar structures during milling and paving operations.

B Materials

Provide a 0.25-inch minimum thickness steel plate that extends to the outside edge of the existing masonry.

C (Vacant)

D Measurement

The department will measure Cover Plates Temporary as each individual unit, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
611.8120.S	Cover Plates Temporary	EACH

Payment is full compensation for furnishing, installing, and removing the cover plates.

The steel plates shall become the property of the contractor when no longer needed in the contract work.

stp-611-006 (20151210)

91. Pipe Grates, Item 611.9800.S.

A Description

This special provision describes providing pipe grates on the ends of pipes.

B Materials

Furnish steel conforming to the requirements of standard spec 506.2.2.1. Furnish steel pipe conforming to the requirements of standard spec 506.2.3.6.

Furnish pipe grates galvanized according to ASTM A123.

Furnish angles and brackets galvanized according to ASTM A123.

Furnish required hardware galvanized according to ASTM A153.

C Construction

Repair pipes, rods, angles and brackets on which the galvanized coating has been damaged according to the requirements of AASHTO M36M.

D Measurement

The department will measure Pipe Grates in units of work where one unit is one grate, completed and accepted.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
611.9800.S	Pipe Grates	EACH

Payment is full compensation for furnishing and installing all materials; and for drilling and connecting grates to pipes.

stp-611-010 (20030820)

92. Fence Safety, Item 616.0700.S.

A Description

This special provision describes providing plastic fence at locations the plans show.

B Materials

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

Furnish fence fabric meeting the following requirements.

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

C Construction

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

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

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

D Measurement

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

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
616.0700.S	Fence Safety	LF

Payment is full compensation for furnishing and installing fence and posts; maintaining the fence and posts in satisfactory condition; and for removing and disposing of fence and posts at project completion.

stp-616-030 (20160607)

93. Soil Stabilizer Type B

Replace standard spec. 628.3.12.3(1) with the following:

(1) Apply soil stabilizer with conventional hydraulic seeding equipment at the manufacturer's recommended rate unless the engineer directs otherwise.

94. Sign Supports Concrete Masonry

Add the following to standard spec 636.3.2:

(3) Drill or excavate and maintain a stable open excavation for subsequent installation of drilled footings for sign structure foundations as the plans show. The subsurface conditions vary across the project site and are not necessarily the same at each sign structure foundation in the project. Anticipate the possibility of encountering randomly interlaced seams of loose, permeable sand or gravel of substantial thickness situated within glacial clays and till deposits; saturated soils; ground water; isolated cobbles or boulders; and nested cobbles and boulders at any sign structure foundation when selecting equipment and methods for drilling or otherwise excavating. Partial or full depth temporary casing may be required to maintain the stability of the excavation before placement of reinforcement and filling the excavation with concrete.

(4) It is strongly advised to obtain and review the Geotechnical Exploration and Foundation Evaluation Reports for the sign structures and as well as nearby structures to the sign structure foundation being constructed. See article "Geotechnical Investigation Information" in these special provisions for information on obtaining geotechnical reports.

Add the following to standard spec 636.3.3:

(8) For drilled foundations, no more than 3 inches of standing water is allowed in the bottom of the drilled excavation within a timeframe acceptable to the engineer before placing concrete masonry in the excavation.

Replace standard spec 636.5.2(1) with the following:

(1) Payment for Sign Supports Concrete Masonry is full compensation for providing, transporting, placing and curing the concrete; for providing and removing casing if applicable; for providing required ground rods; for all required excavating; for placing post stubs or anchor bolts, and for providing and placing electrical conduit if required; for pumping of ground water seepage if applicable; for cleaning-up, repairing damage, and for disposing of excavation and surplus materials.

sef-636-005 (20170310)

95. Signs Type I and II.

Furnish and install mounting brackets per approved product list for type II signs on overhead sign supports incidental to sign. For type II signs on sign bridges use aluminum vertical support beams noted above incidental to sign.

Supplement standard spec 637.2.4 with the following:

Use stainless steel bolts, washers and nuts for type I and type II signs mounted on sign bridges or type I signs mounted on overhead sign supports. Use clips on every joint for Sign Plate A 4-6 when mounted on a sign bridge or overhead sign support. Inspect installation of clips and assure bolts and nuts are tightened to manufacturers recommended torque values.

Use aluminum vertical sign support beams that have a 5-inch wide flange and weigh 3.7 pounds per foot, if the L-brackets are 4 inches wide then use 4 inch wide flange beams weighing 3.06 pounds per foot. Contractor shall measure the width of the L-brackets on existing structures of determine the width needed for sign support beams.

Use beams a minimum of six feet in length or equal to the height of the sign to be supported, whichever is greater. Use U-bolts that are made of stainless steel, one-half inch diameter and of the proper size to fit the truss cords of each sign bridge. Install vertical sign support beams on each sign and use new U-bolts to attach each beam to the top and bottom cord of the sign bridge truss.

For type II signs on overhead sign supports follow the approved product list for mounting brackets.

Replace standard spec 637.3.3.2(2) with the following:

(2) Install Type I Signs at the offset stated in the plan, which shall be the clear distance between the edge of mainline pavement right edgeline and the near edge of the sign.

Supplement standard spec 637.3.3.3(3) with the following:

Furnish and install new aluminum vertical sign support beams on each sign and new U-bolts to attach each beam to the top and bottom cord of the sign bridge truss for Type I or Type II Signs and Type I signs on overhead sign supports incidental to sign.

Add the following to standard spec 641.2:

Submit shop drawings for sign bridges and overhead sign supports to SE Region Traffic Operations Engineer, Tom Heydel and Bureau of Structures Design.

SER-637-001 (20170621)

96. Covering Signs.

Replace standard spec 643.2.3.3(2) with the following:

(2) Ensure that covers are flat black, blank, and opaque.

Add the following to standard spec 643.3.4.1 as paragraph four:

(4) If multiple messages on a single sign are required to be covered, minimize the number of holes created by covering the sign with a single rectangular shaped covering. Multiple coverings on a single sign is only permissible where necessary to avoid covering necessary content or as directed by the engineer. Submit sign covering plans to the engineer for single signs requiring multiple coverings 3 days before performing work. Obtain engineer approval before covering signs. Remove sign coverings before placing fixed messages signs unless otherwise directed by the engineer.

sef-643-005 (20180104)

97. Blue Specific Service Signs.

Add the following to standard spec 638.3.4:

Do not remove or move blue specific service signs or their associated posts. Specific service signs are signs with logos that identify commercial entities providing gas, food, lodging, camping, or attractions. A separate contractor, Interstate Logos - Wisconsin, is responsible for these signs. Contact Interstate Logos - Wisconsin at (608) 579-1570 a minimum of 14 calendar days in advance to coordinate removing, moving, or re-installation of these signs.

The contractor is responsible for damage done to these signs due to contractor operations.

~~stp-638-010 (20150630)~~

98. Pond Liner Clay, Item 640.1303.S.

A Description

This special provision describes furnishing and installing clay liner in areas shown on the plans.

B Materials

For each source, prior to excavating and hauling the clay liner to the project, submit the results of the laboratory source screening tests described in Table 1. Laboratory test results of the clay must meet or exceed the requirements before placing material.

Submit source screening test results to the engineer for review, two weeks prior to clay placement.

C Construction

C.1 Clay Liner

C.1.1 Subgrade

Compact the subgrade to the minimum density using standard spec 207.3.6.2 Standard Compaction, or as otherwise specified in the contract requirements.

C.1.2 Erosion Protection

Do not place the clay liner until after all adjacent site grading has been completed and only after silt fence has been installed completely around the area of clay liner placement.

C.1.3 Clay Placement

After the fine grading is complete, place and compact clay liner in compacted 6-inch lifts. Place each lift of clay liner in one continuous lift. See plans for clay liner construction limits. Measure the thickness of the clay, as shown in the plans,perpendicular to the surface.

Notify the engineer at least three days before starting construction of clay liner.

Table 1

Reference	Number	Test Title	Requirements	Testing Frequency	
				Source Screening	Project Testing

AASHTO[1]	T99-01	Moisture –Density Relationships of Soils Using a 2.5-kg (5.5 lb) Rammer a 305 mm (12-in.) Drop (Standard Proctor)	NA	1/source	NA
AASHTO	T-88-00	Particle Size Analysis of Soils	P200[3] $\geq$ 50%	2/source	1/lift
AASHTO	T-89-02	Determining the Liquid Limit of Soils	LL[4] $\geq$ 22%	2/source	1/lift
AASHTO	T-90-00	Determining the Plastic Limit and Plasticity Index of Soils	PI[5] $\geq$ 12%	2/source	1/lift
AASHTO	T310-03	In-Place Density and Moisture Content of Soils and Soil-Aggregates by nuclear Methods (Shallow Depth)	DD[6] $\geq$ 95% of the MDD[7]	NA	100'x100' Grid/lift
ASTM[2]	D5084-03	Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter	K[8] $\leq 1 \times 10^{-7}$ cm/sec	1/source[9]	1/site[10]

Notes:

1. AASHTO = American Association of State Highway and Transportation Officials
2. ASTM = American Society of Testing and Materials
3. P200 = Percent by weight passing the #200 sieve (%)
4. LL = Liquid Limit (%)
5. PI = Plasticity Index (%)
6. DD = Dry Density (pcf)
7. MDD = Maximum Dry Density (pcf) as determined by the Standard Proctor Test
8. K = Hydraulic Conductivity (cm/sec)
9. The sample for the test shall be remolded at a minimum dry density of 95% of the maximum dry density as determined by the Standard Proctor test and at a moisture content required to achieve the required hydraulic conductivity, but with a minimum moisture content at or above the optimum moisture content as determined in the Standard Proctor test.
10. An undisturbed sample from a thinned walled sampler (Shelby tube)

Compact the clay liner to a minimum of 95% Standard Proctor AASHTO T-99 Maximum Dry Density with footed compaction equipment having feet at least as long as the loose lift height. As needed, clay shall be disked or otherwise mechanically processed before compaction to break up clods and allow moisture content adjustment. Clod size shall be no greater than 4 inches. All compaction equipment utilized shall have a minimum static weight of 30,000 pounds.

Provide all equipment necessary to adjust clay liner to the proper moisture content for compaction.

Make sufficient number of passes of the compaction equipment over each lift of clay to ensure complete remolding of the clay.

Do not proceed with placement of additional lifts until all required clay liner testing and documentation has been completed for the previous lift.

During placement of the clay liner the minimum moisture content shall be as defined by the testing performed in the source screening evaluation and with the following limits:

- No drier than the optimum moisture content as determined by the Standard Proctor test.

If the in-place clay liner fails to meet the requirements of Table 1, then remove and replace or rework any portion of the clay liner not meeting the project requirements until project specifications are met. There shall be no compensation for removing, replacing and reworking clay not meeting the requirements in Table 1.

C.1.4 Project Testing and Acceptance

Perform all project testing at the frequency shown in Table 1 except for project testing for ASTM D5084-03 Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter, which will be done by the department. Record clay liner thickness on a 100 foot x 100 foot grid pattern.

Provide the following:

- Access for on-site testing, inspection, and documentation.
- Machinery required to grade/blade density test locations.
- Machinery required to collect undisturbed clay samples (i.e., with Shelby tubes).
- Replace and recompact clay material removed for testing purposes.

Perform sampling, testing, and documentation for project testing in Table 1, required under this provision using HTCP certified technicians. Have a HTCP Grading Technician I (GRADINGTEC-I); or Assistant Certified Technician, Grading (ACT-GRADING); or Aggregate Technician I (AGGTEC-I); or Assistant Certified Technician, Aggregate (ACT-AGG) present at each grading site during all clay liner placement, compaction, and sampling/testing activities. Have a HTCP Nuclear Density Technician I (NUCDENSITYTEC-I) or Assistant Certified Technician, Nuclear Density Gauge Operator (ACT-NUC) perform field density and field moisture content testing.

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

Perform all project testing with a department approved laboratory.

C.1.5 Department Testing

The department will perform the project testing for ASTM D5084-03 Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter.

D Measurement

The department will measure Pond Liner Clay in volume by the cubic yards acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
640.1303.S	Pond Liner Clay	CY

Payment is full compensation for dewatering areas of site where the clay liner is to be placed; for furnishing, placing and compacting the clay liner; and for performing all tests.

stp-640-016 (20210113)

99. Nighttime Work Lighting-Stationary.

A Description

This special provision describes furnishing portable lighting as necessary to complete nighttime work. Nighttime operations consist of work specifically scheduled to occur after sunset and before sunrise.

B (Vacant)

C Construction

C.1 General

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

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

1. Layout, including location of portable lighting – lateral placement, height, and spacing. Clearly show on the layout the location of all lights necessary for every aspect of work to be done at night.
2. Specifications, brochures, and technical data of all lighting equipment to be used.
3. The details on how the luminaires will be attached.
4. Electrical power source information.
5. Details on the louvers, shields, or methods to be employed to reduce glare.
6. Lighting calculations. Provide illumination with average to minimum uniformity ratio of 5:1 or less throughout the work area.
7. Detail information on any other auxiliary equipment.

C.2 Portable Lighting

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

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

C.3 Light Level and Uniformity

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

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

C.4 Glare Control

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

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

1. Aim tower-mounted luminaires, either parallel or perpendicular to the roadway, so as to minimize light aimed toward approaching traffic.
2. Aim all luminaires such that the center of beam axis is no greater than 60 degrees above vertical (straight down).

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

C.5 Continuous Operation

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

D (Vacant)

E Payment

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

stp-643-010 (20100709)

100. Truck or Trailer-Mounted Attenuator, Item 643.1055.S.

A Description

This special provision describes protecting work operations with a truck or trailer-mounted attenuator (TMA).

B Materials

Furnish and maintain a TMA conforming to NCHRP Report 350 test level 3 or to MASH crashworthiness criteria. Submit written certification from the manufacturer that the host vehicle/attenuator configuration provided conforms to crashworthiness criteria. Include the federal-aid reimbursement eligibility letter with that submittal.

Provide a host vehicle and mount the attenuator conforming to the attenuator manufacturer's specifications. Provide the engineer a copy of the manufacturer’s specifications and installation instructions.

C Construction

Coordinate with the engineer at least 72 hours before its intended use so the engineer can determine if the work operation requires TMA protection.

Position the attenuator at a manufacturer-recommended location in advance of a stationary work operation. Position and maintain the attenuator consistently at the manufacturer-recommended distance from a mobile work operation. Ensure that an operator stays with the host vehicle while protecting a mobile work operation.

D Measurement

The department will measure Truck or Truck-Trailer-Mounted Attenuator by the day acceptably completed, measured to the 1/2-day based on the engineer-determined time the attenuator is required to protect work operations. The department will measure 4 or less hours per calendar day as a half day and over 4 hours as a full day.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
643.1055.S	Truck or Trailer-Mounted Attenuator	DAY

Payment is full compensation for providing the portable attenuator, host vehicle, and operator.

stp-643-015 (20140630)

101. Basic Traffic Queue Warning System, Item 643.1205.S.

A Description

This special provision describes providing, repositioning, operating, maintaining, monitoring, calibrating, testing and removing a basic traffic queue warning system (QWS) capable of measuring vehicular speeds at downstream sections of a roadway, and activating the system.

B Materials

Provide Basic Traffic QWS components and software that is National Transportation Communications for ITS Protocol (NCTIP) compliant.

B.1 Portable Traffic Sensors (PTS)

Provide PTS that are nonintrusive and capable of capturing vehicle speed in mph. Integrate each sensor with a modem to communicate with the automated system manager.

B.2 Static Traffic Control Signs with Temporary Flashing Beacon Signs (FBS)

Provide static traffic control signs with temporary flashing beacon signs conforming to standard spec 658.2(2) for Traffic Signal Faces. Ensure each FBS is integrated with a modem, and other equipment (e.g., automated system manager) mounted on it, and acts as a single device for communicating with similarly integrated devices and displaying real-time traffic conditions.

B.3 Automated System Manager (ASM)

Provide an ASM that assesses current traffic data captured by the PTS and activates/deactivates the FBS based on predetermined speed thresholds.

B.4 System Communications

Ensure Basic Traffic QWS communications meet the following requirements:

1. Perform required configuration of the Basic Traffic QWS's communication system automatically during system initialization.
2. Communication between the server and any individual FBS or PTS are independent through the full range of deployed locations, and do not rely upon communications with any other FBS or PTS.
3. Incorporate an error detection/correction mechanism into the Basic Traffic QWS communication system to ensure the integrity of all traffic condition data.

B.5 System Acceptance

Submit vendor verification to the engineer and Bureau of Traffic Operations (DOTBTOworkzone@dot.wi.gov) 14 calendar days before the pre-construction meeting that the system will adequately perform the functions specified in this special provision. Adequate verification includes past successful performance of the system, literature and references from successful use of the system by other agencies, and/or demonstration of the system.

Provide contact information for a designated representative responsible for monitoring the performance of the system and for making modifications to the operational settings as the engineer directs. Provide all testing and calibration equipment.

C Construction

C.1 General

Install and reposition Basic Traffic Queue Warning System per plan or as the engineer directs. Provide plan to the engineer and Bureau of Traffic Operations (DOTBTOworkzone@dot.wi.gov) 14 calendar days before the pre-construction meeting.

PTS may be mounted on FBS, arrow board or other trailer devices.

Install PTS at the following locations:

1. Place first PTS within the lane closure taper.
2. Place second PTS 5,700 feet upstream of the lane closure taper or on FBS #3.
3. Place third PTS 2 miles upstream of the lane closure taper or on FBS #2.

Install FBS at the following locations, delineated by 5 drums:

1. Place first FBS (FBS #3) 5,700 feet upstream of the lane closure taper.
2. Place second FBS (FBS #2) 2 miles upstream of the lane closure taper.
3. Place third FBS (FBS #1) 3 miles upstream of the lane closure taper.

If there are more than 2 lanes or specified in the plans, place FBS on both sides of the roadway.

Number the devices in chronological order so they are visible from the shoulder with 6-inch white high reflective sheeting.

Provide technical personnel for all system calibration, operation, maintenance, and timely on-call support services.

Promptly correct the system within 24 hours of becoming aware of a deficiency in the operation or individual part of the system. A minimum of three days before deployment, place the Basic Traffic QWS and demonstrate to the Department that the Basic Traffic QWS is operational.

Maintain the Basic Traffic QWS for the duration of the project. Ensure the system operates continuously (24 hours, 7 days a week) in the automated mode throughout the duration of the project.

Remove the system upon completion.

C.2 Reports

Provide an electronic copy of a weekly summary report of all data via email to the engineer. Ensure the report includes, at a minimum, the average speed per sensor, time in congestive state per sensor and number of triggers per day.

C.3 Meetings

Attend mandatory in-person pre-construction meetings with the department. Attend additional meetings as deemed necessary by the department. These meetings may be held in person or via teleconference, as scheduled by the department.

C.4 Programming

C.4.1 General

Program the Basic Traffic QWS to ensure that the following general operations are performed:

1. Provide a password protected login to the ASM, website and all other databases.
2. Automatic setting of the FBS to reflect current traffic flow status updated every 60 seconds for congestion. Ensure to remove a congestion message when 180 seconds of average traffic speeds above the current level are observed, or utilize a customized frequency as determined by the engineer.
3. The FBS activate based on pre-determined speed thresholds from the next downstream sensor.
    - FBS #3 shall activate based on traffic speeds at the PTS located within the lane closure taper.
    - FBS #2 shall activate based on traffic speeds at the PTS located approximately 1 mile upstream of lane closure taper, or at FBS #3.
    - FBS #1 shall activate based on traffic speeds at the PTS located 2 miles upstream of lane closure taper, or at FBS #2.
4. Provide real-time data from the ASM to a website with a full color mapping feature and refresh every 60 seconds. Make data on website available to the department staff at all times for the duration of the work zone activity. Ensure website includes:
    - Vehicle speeds
    - FBS triggers
    - Device locations
5. Archive all traffic data in a Microsoft Excel format with date and time stamps.
6. Configure the website to quantify system failures which includes communication disruption between any devices in the system configuration, FBS malfunctioning, PTS malfunction, loss of power, low battery, etc.
7. Automatically generate and send an email alert any time a user specified queue is detected by the system.
8. Ensure the system autonomously restarts in case of any power failure.

C.4.2 System Operation Strategy

Arrange for the vendor/manufacturer to coordinate system operation, detection, and trends/thresholds with the engineer.

The sequences below are a minimum requirement, but can be adjusted at the discretion of the engineer, are as follows:

Free Flow:

If the current PTS speed on a downstream section is at or above 40 mph, the next upstream FBS will not flash.

Slow or Stopped Traffic:

If the current PTS speed on a downstream section of the roadway is between the 39 mph and 0 mph (for example, 35 mph), the next upstream FBS shall flash.

C.5 Calibration and Testing

At the beginning of the project perform a successful field test and calibration at the Basic Traffic QWS location to verify the system is detecting accurate vehicle speeds, and accurately relaying the information to the ASM and the FBS.

Send email of successful calibration and testing to the engineer.

D Measurement

The department will measure Basic Traffic Queue Warning System by the day, acceptably completed, measured as each complete system per roadway.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
643.1205.S	Basic Traffic Queue Warning System	DAY

Payment is full compensation for providing, repositioning, operating, maintaining, monitoring, calibrating, testing, and removing the complete system consisting of FBS, PTS, ASM, and system communications.

Failure to correct a deficiency to the FBS, PTS, or ASM within 24 hours after notification from the engineer or the department will result in a one-day deduction of the measured quantity for each day in which the deficiency is not corrected.

Failure to correct the website within 24 hours after notification from the engineer will result in a 10% reduction of the day quantity for each day the website is down.

The engineer will have sole discretion to assess the deductions for an improperly working Basic Traffic QWS.

stp-643-046 (20210113)

102. Traffic Control Interim Lane Closure, Item 643.4100.S.

A Description

This special provision describes closing a freeway/expressway traffic lane.

B (Vacant)

C Construction

Install and reposition traffic control devices as required to close a traffic lane. Remove and return the devices to their previous configuration when the closure is no longer required.

D Measurement

The department will measure Traffic Control Interim Lane Closure as each individual reposition/return cycle, acceptably completed. The department will not measure additional moves or configuration changes as might be required solely to accommodate the contractor's operations.

The department will measure the closures by traffic lane and roadway. The department will not measure multiple closures in the same traffic lane on a project.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
643.4100.S	Traffic Control Interim Lane Closure	EACH

Payment is full compensation for closing and re-opening the affected traffic lane.

stp-643-030 (20170615)

103. Temporary Pavement Marking

Add the following to standard spec 649.3:

(1) On pavements not scheduled for removal under this project, remove markings using air blasting, water blasting, or a combination of thereof. Do not use grinding on these pavements.

104. General Requirements for Electrical Work.

Replace standard spec 651.3.3(3) with the following:

(2) Request a signal inspection of the completed signal installation to the project engineer at least five working days prior to the time of the requested inspection. Notify the department's Electrical Field Unit at (414) 266-1170 to coordinate the inspection. The department's Region Electrical personnel will perform the inspection. In the event of deficiencies, request a re-inspection when the work is corrected. The engineer will not authorize continuation of aboveground work or turn-on until the contractor corrects all deficiencies.

105. Electrical Conduit.

Replace standard spec 652.5(2) with the following:

(2) Payment for Conduit Rigid Metallic, Conduit Rigid Nonmetallic, Conduit Reinforced Thermosetting Resin, and Conduit Special bid items is full compensation for providing the conduit, conduit bodies, and fittings; for providing all conduit hangers, clips, attachments, and fittings used to support conduit

on structures; for pull wires or ropes; for expansion fittings and caps; for making necessary connections into existing pull box, manhole, junction box or communication vault; for excavating, bedding, and backfilling, including any sand, concrete, or other required materials; for disposing of surplus materials; and for making inspections.

Replace standard spec 652.5(5) with the following:

(5) Payment for Conduit Loop Detector is full compensation for providing all materials, including conduit, compacted backfill, surface sealer if required, pull wire if required, condulets, conduit fittings, and for making necessary connections into existing pull box, manhole, junction box or communication vault.

106. Install Conduit Into Existing Item, Item 652.0700.S.

A Description

This special provision describes installing proposed conduit into an existing manhole, pull box, junction box, communication vault, or other structure.

B Materials

Use conduit, as provided and paid for under other items in this contract. Furnish backfill material, topsoil, fertilizer, seed, and mulch conforming to the the standard spec.

C Construction

Expose the outside of the existing structure without disturbing existing conduits or cabling. Drill the appropriate sized hole for entering conduits at a location within the structure without disturbing the existing cabling and without hindering the installation of new cabling within the installed conduit. Fill void area between the drilled hole and conduit with an engineer-approved filling material to protect against conduit movement and entry of fill material into the structure. Tamp backfill into place.

D Measurement

The department will measure Install Conduit Into Existing System by the unit, acceptably installed. Up to five conduits entering a structure per entry point into the existing structure will be considered a single unit. Conduits in excess of five, or conduits entering at significantly different entry points into the existing pull box, manhole, or junction box will constitute multiple units of payment.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
652.0700.S	Install Conduit Into Existing Item	EACH

Payment is full compensation for excavating, drilling holes; furnishing and installing all materials, including bricks, coarse aggregate, sand, bedding, and backfill; for excavating and backfilling; and for furnishing and placing topsoil, fertilizer, seed, and mulch in disturbed areas; for properly disposing of surplus materials; and for making inspections.

stp-652-070 (20100709)

107. Electrical Service Meter Breaker Pedestal IH 43 NB Off Ramp/N Katherine Dr & CTH W, Item 656.0200.3001; IH 43 SB Off Ramp/Port Washington Ln & CTH W, Item 656.0200.3002.

Append standard spec 656.2.3 with the following:

The department will be responsible for the electrical service installation request for any department maintained facility. Notify the maintaining authority if the signal is not state maintained that it is their responsibility to arrange for the electrical service installation.

Electrical utility company service installation and energy cost will be billed to and paid for by the maintaining authority.

Install the cabinet base and meter breaker pedestal first, so the electrical utility company can install the service lateral. Install a 3” conduit from the point of service from the utility to the meter breaker pedestal. Finish grade the service trench, replace topsoil that is lost or contaminated with other materials, fertilize, seed, and mulch all areas that are disturbed by the electrical utility company.

Append standard spec 656.5 with the following:

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

108. Signal Housings.

Replace 658.2(4) of the standard specifications with the following:

(3) For pedestrian signal faces: furnish polycarbonate resin housings, doors, and visors. Use yellow, Federal Standard 595 - FS13538, housings and dull black door faces and visors. For 16-inch heads, mount a z-crate visor and gasket to the door with stainless steel tabs. Drill the housing for top and bottom pipe mounting with the ability to rotate 270 degrees on the poly mounting brackets.

109. Pedestrian Push Buttons.

Replace 658.2(5) of the standard specifications with the following:

(4) For pedestrian push buttons: furnish freeze-proof ADA compliant pedestrian push buttons made by a department-approved manufacturer. The contractor shall place a Size 1, Type H reflective (R10-3EL, R, D) sign sticker (per state sign plate), message series – B directly above each push button. Include a directional arrow or arrows on the sign as the plans show.

110. Traffic Signal Faces & Pedestrian Signal Face 16-Inch.

Append 658.3(5) of the standard specifications with the following:

(5) Connect all ungrounded conductors with wire nuts in the appropriate sections of the signal heads. Be certain to twist wires prior to installing the wire nuts. All wire nuts must be installed facing up to prevent the entrance of water.

111. Communication Systems.

Replace standard spec 678.2.1(1) with the following:

(1) The department will furnish fiber optic cable, termination panels and ethernet switches.

Pick up the department furnished materials at the department’s Electrical Shop located at 935 South 60th Street, West Allis. Notify the department’s Electrical Field Unit at (414) 266-1170 and make arrangements for picking up the department furnished materials five working days prior to picking up the materials.

Replace standard spec 678.5(6) with the following:

(6) Payment for Install Ethernet Switches is full compensation for transporting and installing the devices; for cables and connectors; and connecting the devices.

112. Ramp Closure Gates 40-FT, Item 662.1040.S.

A Description

This special provision describes providing freeway on-ramp closure gates on type 5 steel luminaire poles.

B Materials

B.1 General

Provide five user manuals and a listing of vendors and contact information for each manufactured component including flasher electrical components.

The engineer may allow alternates equal to specified manufactured components. The engineer may require plan detail modifications to accommodate alternates. The engineer may accept alternate arms or mounting adaptors only if the contractor can demonstrate that the department can easily remove and replace the arms.

B.2 Components

Furnish type 5 steel poles designed to carry twin 15-foot luminaire arms and conforming to standard spec 657 and with dimensions for acceptable installation of the ramp gate hardware as shown on the detail. Ensure a contiguous pole by eliminating the hand hole near base of pole, thus allowing uninhibited mounting of the gate pivot assembly.

Furnish galvanized steel nuts and bolts conforming to ASTM A307 except where designated as high strength (HS), conform to ASTM F3125. For the ramp closure gate locking mechanism, furnish a 3/4-inch handle nut.

Furnish grade A36 steel for the gate supports, gate pivot assembly, and associated hardware galvanized after fabrication by either a mechanical or hot-dip process. Grind welded connections, rough edges, and burrs smooth before galvanizing to ensure a finished appearance. Ensure that the galvanized coating conforms to ASTM A 153.

Provide aluminum/fiberglass gate arms of the nominal length the bid item indicates and conforming to plan dimensions. Cover gate arms on two sides with alternating red and white shop-applied type H reflective from the department's approved products list. Also provide a shear pin base that is the manufacturer’s "permanent pivot" style. Obtain components from:

B&B Roadway
15191 Hwy 243
Russellville, AL 35654
Tel: (888) 560-2060
Gate arm: Model MU605

Furnish a worm gear winch with a single line vertical lift capacity of 2000 lbs. Ensure that the winch has hardened steel gears, a handgrip, permanently lubricated bearings, a reinforced arc-welded reel assembly, and mounting plate. Ensure that the winch can be mounted to the winch mount plate shown on the construction details and the handgrip can be operated without conflict with the pole or ramp gate assembly. Furnish a 2-inch outdoor rated, rot resistant polyester strap for the connection between the worm gear winch and the gate arm pivot assembly.

C Construction

Provide ramp closure gate at the locations the plans show. Apply marine grade anti seize compound compound to all bolt threads and to the interface between the aluminum base and steel pole. The engineer may direct adjustment of the gate arm assembly to ensure the correct vertical and angular orientation of the completed closure gate.

Install structure identification plaques in the location the plan details show.

D Measurement

The department will measure the Ramp Closure Gates bid items as each individual installation, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
662.1040.S	Ramp Closure Gates 40-FT	EACH

Payment for the Ramp Closure Gate bid items is full compensation for providing ramp closure gates including support poles; for gate arm assemblies including guides, collars, and gate arms; and for structure identification plaques.

stp-662-005 (20191121)

113. Roadway Embankment, Item SPV.0035.0001.

A Description

This special provision describes placing in embankments and in miscellaneous backfills, material obtained under the bid items in the roadway and drainage excavation or excavation for structure sections; or material obtained off site as specified under these special provisions.

B Materials

B.1 Embankment

Furnish roadway embankment conforming with standard spec 207.2 except as follows:

Add the following to standard spec 207.2(1):

If the contractor utilizes offsite material to construct embankments, the material shall conform to standard spec 208 except as follows:

Delete standard spec 208.2.2(2).

C Construction

Construct roadway embankment according to standard spec 207.3 except as follows:

Add the following to standard spec 207.3.6:

Prior to placing any material for a succeeding layer, ensure the previous layer does not have excessive rutting, displacement, or distortion under the compacting or hauling equipment. If rutting, displacement, or distortion is observed, the contractor shall inform the engineer how yielding material will be addressed prior to continuing roadway embankment construction.

If off site material is utilized, construction must conform to standard spec 208.3.

Replace standard spec 205.3.2(4) with the following:

If placing embankment on side slopes 10 feet high or higher and steeper than one vertical to 3 horizontal, provide vertically-faced, horizontal benches at least 2 feet wide into the existing embankment slope every 2-foot of vertical height.

If constructing embankment on only one side of abutments, wing walls, or piers, construct the embankment so that the area immediately adjacent to the structure is not compacted in a manner that causes overturning of or excessive pressure against the structure. If constructing embankment on both sides of a concrete wall, pipe, or box type structure, construct the embankment so that the elevation on both sides of the structure is always approximately the same.

D Measurement

The department will measure Roadway Embankment without any correction for shrinkage or expansion factors by the cubic yard acceptably completed in its final location using the method of average end areas, except as follows:

a) The engineer and contractor mutually agree to an alternative volume calculation method.
b) If it is not possible to compute volumes of the various classes of roadway and drainage embankment by the method of average end areas due to erratic location of isolated deposits, the department may compute the volumes by three-dimensional measurements.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0035.0001	Roadway Embankment	CY

Payment is full compensation for furnishing offsite and onsite sources, for forming, compacting, shaping, sloping, trimming, finishing, and maintaining the embankments. If offsite materials are utilized for roadway embankments, payment includes full compensation for all items listed in standard spec 208.5 (2), for obtaining all required permits, and all other incidental work required under this section.

ASP-5 will be applied to this item. The Fuel Usage Factor is 0.23.

114. HPC Masonry Structures, Item SPV.0035.4000.

A Description

This special provision describes specialized material and construction requirements for high-performance concrete used in bridge structures. Conform to standard spec 501, 502 and 509, as modified in this special provision.

B Materials

B.1 Coarse Aggregates

Replace the 501.2.7.3.1(2)with the following:

(1) Use clean, hard, durable crushed limestone with 100 percent fractured surfaces and free of excess flat and elongated pieces, lightweight particles, frozen lumps, vegetation, deleterious substances or adherent coatings considered injurious.

(2) Use virgin aggregates only.

B.2 Deleterious Substances

Replace 501.2.7.2.2 and 501.2.7.3.3 paragraph one with the following:

(1) The quantity of deleterious substances must not exceed the following percentages:

DELETERIOUS SUBSTANCE	PERCENT BY WEIGHT
Shale	1.0
Coal	1.0
Clay lumps	0.3
Soft fragments	5.0
Any combination of above	5.0
Flat or elongated pieces based on a 3:1 ratio(1)	15.0
Materials passing the No. 200 sieve	1.5
Chert(2)	1.0
Lightweight pieces(3) in concrete not for prestressed concrete members	5.0
Lightweight pieces(3) in concrete for pre-stressed concrete members	2.0

(1) As modified in CMM 860

(2) Material classified lithologically as chert and having a bulk specific gravity (saturated surface-dry basis) of less than 2.45. Determine the percentage of chert by dividing the weight of chert in the sample retained on a 3/8-inch sieve by the weight of the total sample.

(3) Material having a saturated surface-dry bulk specific gravity of less than 2.45, tested according AASHTO T113. Determine the percentage of lightweight pieeces by dividing the weight of the lightweight puices in the sample retained on a 3/8-inch sieveby the weight of the total sample.

B.3 Physical Properties

Replace 501.2.7.3.2.1 (1) and (2) with the following:

(1) The department will ensure that Los Angeles wear testing conforms to AASHTO T 96, soundness testing conforms to AASHTO T 104 using 5 cycles in sodium sulfate solution on aggregate retained on the No. 4 sieve, and freeze-thaw soundness testing conforms to AASHTO T 103. The percent wear must not exceed 30, the weighted soundness loss must not exceed 6 percent, and the weighted freeze-thaw average loss must not exceed 15 percent.

B.4 Concrete Curing Materials

Replace with the following:

(1) Furnish burlap conforming to AASHTO M 182, class 1, 2, 3 or 4.

C Construction

C.1 Extended Delivery Time

Delete 501.3.2.4.3.3.

C.2 Ready-Mixed Concrete

Replace 501.2.5.1 with the following:

Use central-mixed concrete for all work performed under this special provision. Central-mixed concrete is mixed in a stationary mixer and transported to the point of delivery with or without mechanical agitation in the transporting vehicle.

C.3 Delivery

Replace 501.3.5.2 (3)with the following:

(3) Deliver and discharge all concrete within one hour beginning when adding water to the cement, or when adding cement to the aggregates. A decrease in air temperature below 60 F or the use of department-approved retarders does not increase the discharge time.

C.4 Slump

Replace 501.3.7.1 with the following:

(1) Use a 2-inch to 4-inch slump

(2) Perform the slump tests for concrete according to AASHTO T119.

C.5 Hot Weather Concreting

Replace 501.3.8.2.1 (1) and (2) with the following:

(1) The contractor is responsible for the quality of concrete placed in hot weather. Take the following steps to ensure the quality of the concrete placed. Submit a written temperature control plan at or before the pre-pour meeting. In that plan, outline the actions to control concrete temperature if the concrete temperature at the point of placement exceeds 80 F. Do not place concrete without the engineer's written acceptance of that temperature control plan. Perform the work as outlined in the temperature control plan.

(2) If the concrete temperature at the point of placement exceeds 80 F, do not place concrete for items covered in this special provision.

C.6 Bridge Decks

Replace 501.3.8.2.2 with the following:

(1) Do not place concrete for bridge decks when the air temperature is above 80 F.

(2) For concrete placed in bridge decks, submit a written evaporation control plan at each pre-pour meeting. In that plan, outline the actions to maintain concrete surface evaporation at or below 0.15 pounds per square foot per hour. Do not place concrete for bridge decks without the engineer's written acceptance of that evaporation control plan. If the engineer accepts an evaporation control plan calling for ice, the department will pay $0.75 per pound for that ice. Perform the work as outlined in the evaporation control plan.

(3) If predicting a concrete surface moisture evaporation rate exceeding 0.15 pounds per square foot per hour, do not place concrete for bridge decks.

(4) Provide evaporation rate predictions to the engineer 24 hours before each bridge deck pour.

(5) Compute the evaporation rate from the predicted ambientconditions at the time and place of the pour using the nomograph, or computerized equivalent, specified in CMM 525, figure 1 or using a computerized equalivalent.Use weather information from the nearest national weather service station. The engineer will use this information to determine if the pour will proceed as scheduled.

(6) At least 8 hours before each pour, the engineer will inform the contractor in writing whether or not to proceed with the pour as scheduled. If the actual computed evaporation rate during the pour exceeds 0.15 pounds per square foot per hour, at the engineer's discretion, the contractor may be allowed to implement immediate corrective action and complete the pour. If the engineer allows the placement to continue, the department will pay $0.75 per pound for the quantity of ice required to maintain the concrete surface evaporation at or below 0.15 pounds per square foot per hour. If ice is not available the department will pay for any actions, beyond those described in the contractor’s evaporation plan, required to complete the pour as the engineer directs.

C.7 Detailed Plans

Replace 502.3.2.1 with the following:

(1) As specified in 105.2, submit four copies of detailed plans and computations for falsework, signed and sealed by a Professional Engineer registered in the State of Wisconsin, three weeks before erection of falsework for review and acceptance. Acceptance of the detailed plans and computations will in no way relieve the contractor of the responsibility of providing a safe and stable structure,and obtaining satisfactory results.

C.8 Superstructures

Delete 502.3.5.4 (6).

C.9 Floors

Replace 502.3.7.8 (5) with the following:

(5) Set the rails or tracks that the finish machine rides on, to the required elevation; and ensure they adjust to allow for settlement under load. Support the rails or tracks outside the limits of the finished riding surface. Do not support rails or tracks on the tops of girders, or within the finished riding surface, without the engineer's written permission.

Delete502.3.7.8(13)(14)(15)

Add the following 501.3.7.8:

(19) Do not place bridge deck concrete more than 10 feet ahead of the finishing machine. If there is a delay of more than 10 minutes during the placement of a bridge deck, cover all concrete (unfinished and finished) with wet burlap to protect the concrete from evaporation until placement operations resume.

(20) Keep hand finishing, except for the edge of deck, to a minimum. Equip the finishing machine with a pan behind the screed. Apply micro texture using a broom or turf drag following the use of a 10-foot straight edge. Only finish by hand as necessary to close up finished concrete. Begin wet curing the deck within a timeframe acceptable to the engineer following the micro texture.

(21) For bridge decks with a design speed of 40 mph or greater, provide longitudinal grooving according to the provision included in this contract.

(23) Provide lighting as necessary to safely perform the required work and facilitate inspection during nighttime hours. Ensure that lighting does not interfere with or impede traffic on open roadways and does not cause glare, shine or directly face the eyes of oncoming drivers. After initial setup, drive through and observe the lighted work area from each direction on the main roadway. Adjust lighting alignment if lighting causes glare, shine or directly faces the eyes of oncoming drivers.

C.10 General

Replace 502.3.8.1 (1) with the following:

(1) Maintain adequate moisture throughout the concrete mass to support hydration for at least 14 days.

C.11 General

Replace 502.3.8.2.1 with the following:

(1) Wet-cure the concrete for bridge decks, structural approach slabs, sidewalks on bridges and raised medians on bridges for 14 days by use of a soaker hose system, or other engineer-approved methods. Cover the finished surface of bridge decks and overlays with one layer of wetted burlap or wetted cotton mats within 10 minutes after the finishing machine has passed. Apply the burlap/cotton gently to minimize marking of the fresh concrete. Keep the first layer of burlap/cotton continuously wet until the bridge deck or overlay is sufficiently hard to apply a second layer of wetted burlap/cotton. Immediately after applying the second layer of burlap/cotton, continue to keep the deck wet until placing and activating the soaker hose system. Throughout the remainder of the curing period, keep the burlap/cotton continuously wet with soaker hoses hooked up to a continuous water source. Inspect the burlap/cotton twice daily to ensure the entire surface is moist. If necessary, alter the soaker hose system as needed to ensure the entire surface is covered and stays moist. After 48 hours from the time of completion of the bridge deck or overlay pour, the soaker hose system and burlap/cotton may be covered with polyethylene sheeting. Provide a continuous flow of water through the soaker hose system for the entire curing period.

(2) Do not uncover any portion of the deck during the first 7 days of the curing period except as allowed by the engineer.

(3) Set up and test the fogging system before each bridge deck, structural approach slab, bridge mounted sidewalk or bridge mounted raised median pour. Keep the fogging system set up and operational during the pour.

C.12 Decks

Delete 502.3.8.2.3.

C.13 Parapets

Replace 502.3.8.2.4 with the following:

(1) Cure the inside and outside concrete faces and tops of railings or parapets by covering with wetted burlap within a timeframe acceptable to the engineer after form removal and surface finish application. Keep the burlap thoroughly wet for at least 7 days; or by covering for the same period with thoroughly wet polyethylene-coated burlap conforming to 502.2.6.4

(2) Secure coverings along all edges to prevent moisture loss.

C.14 Bridge Decks

Replace 502.3.9.6 (2) with the following:

(2) Protect the underside of the deck, including the girders, for bridge deck and overlay pours by housing and heating when the national weather service forecast predicts temperatures to fall below 32° F during the cold weather protection period. Maintain a minimum temperature of 40° F in the enclosed area under the deck for the entire 14-day curing period.

D (Vacant)

E Payment

Replace 502.5.1 with the following:

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0035.4000	HPC Masonry Structures	CY

Lighting for nighttime bridge deck placement is included.

Sampling and Testing Supplement 710.5 with the following:

710.5.8 Chloride Penetration Resistance

(1) For each new or changed mix design, measure chloride penetration resistance according to AASHTO T 277 (Rapid Chloride Permeability Test) at a frequency of 1 test per 3 months (quarterly) of production.

(2) Strip permeability samples for AASHTO T 277 testing of their molds and wet cure to an age of 7 days in a standard moist room or water tank. After 7 days, submerge the samples in water heated to 100 F until an age of 28 days. Upon completion of the curing process, obtain one sample from each cylinder and test according to AASHTO T 277.

(3) Ensure that the initial accepted mix designs meet the chloride penetration resistance limit of 1500 coulombs based on the AASHTO T 277 Rapid Chloride Permeability test. Chloride resistance testing conducted quarterly using AASHTO T 277 Rapid Chloride Permeability Test during production will not be used for acceptance of previously accepted mixes and concrete masonry mixed and placed according to the contract requirements. For quarterly chloride resistance test results exceeding 1500 coulombs, the department may require adjustment of the concrete mix going forward to improve the chloride penetration resistance.

Structures

Replace 715.2.2.2 (1) with the following:

(1A) Develop and test each mix to be used for HPC Masonry Structures. Produce a laboratory trial mix for each mix, as well as a trial mix from each plant used to supply the project. Test all mixes at a department-qualified laboratory.

(1B) The laboratory trial mix data must include the results of the following tests:

1. AASHTO T 119 Slump of Hydraulic Cement Concrete.
2. AASHTO T 121 Mass per Cubic Foot, Yield
3. AASHTO T 152 Air Content.
4. AASHTO T 22 Compressive Strength.
5. AASHTO T 277 Rapid Determination of the Chloride Permeability of Concrete, using the modified curing procedure according to 710.5.7 (2) in this special provision.
6. AASHTO T 309 Temperature.
7. Water Cement Ratio.

(1C) The 28-day compressive strength must be at least 4000 psi. The 28-day results of the permeability test must be at most 1500 coulombs.

Replace 715.2.2.2 (2) with the following:

(2) Provide a cementitious content within a range of 470 to 540 pounds per cubic yard. For all superstructure and substructure concrete, unless the engineer approves otherwise in writing, conform to one of the following:

1. Use class C fly ash, class F fly ash, or grade 100 or 120 slag as a partial replacement for portland cement. For binary mixes use fly ash within a range of 15 to 30 percent or slag within a range of 20 to 30 percent.

For ternary mixes use fly ash plus slag in combination within a range of 15 to 30 percent. Percentages are stated as percent by weight of the total cementitious material in the mix.

2. Use a type IP, IS, or IT blended cement.

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115. Truck Entering Warning System, SPV 0045.1001

A Description

This special provision describes furnishing, installing, integrating, calibrating, making functional, and maintaining a Truck Entering Warning System to provide advance warning of construction vehicles merging into the traffic stream. The warning system must be functional at all times the respective work zone is in use.

This system will include one (1) solar powered flashing beacon sign (FBS) with a static traffic control sign, a wireless sensor system to detect construction vehicle traffic as it is about to merge into the traffic stream, and communications between the sensor and the FBS that will activate the sign upon detection of a merging construction vehicle.

B Materials

B.1 Traffic Detection System

Provide a Traffic Detection System that is non-intrusive to the roadway pavement. Locate the portable traffic sensor(s) (PTS) to provide a maximum 5 second delay, or other time as directed by the engineer, between the construction vehicle reaching the access point and trigger the FBS beacon activation.

B.2 Static Traffic Control Signs with Temporary Flashing Beacon Signs (FBS)

Provide static traffic control signs conforming to standard spec 643 and Standard Sign Plate W8-77. Provide temporary FBS conforming to the standard spec 658.2.2, Traffic Signal Faces.

B.3 Automated System Manager (ASM)

Provide an ASM that assesses current detector data captured by the traffic detection system that activates/deactivates the FBS based on work zone vehicle truck locations.

B.4 System Communications

Ensure Truck Entering Warning System communications meet the following requirements:

1. Perform required configuration of the Truck Entering Warning System's communication system automatically during system initialization.
2. Communication between the server and the FBS or PTS are independent throughout the full range of deployed locations, and do not rely upon communications with any other FBS or PTS.
3. Incorporate an error detection/correction mechanism into the Truck Entering Warning System to ensure the integrity of all traffic condition data and motorist information messages.
4. All communications systems within this system shall be certified to be compliant with all pertinent F.C.C. regulations.

B.5 System Acceptance

Submit vendor verification to the engineer 14 calendar days before the pre-construction meeting that the system will adequately perform the functions specified in this special provision. Adequate verification includes past successful use of the system by other agencies, and/or demonstration of the system.

Provide contact information for a designated representative responsible for monitoring the performance of the system and for making modifications to the operational settings as the engineer directs.

Provide all testing and calibration equipment.

C Construction

C.1 General

Install and reposition Truck Entering Warning System per plan or as the engineer directs. FBS are typically located 1500' in advance of the truck merging location. Quantity and location of the detectors shall be determined by the contractor.

Provide technical personnel for all system calibration, operation, maintenance, and timely on-call support services.

Promptly correct the system within 24 hours of becoming aware of a deficiency in the operation or individual part of the system. A minimum of three days before deployment, place the Truck Entering Warning System and demonstrate to the department that the Truck Entering Warning System is operational.

Maintain the Truck Entering Warning System for the duration identified in the plan. Ensure the system operates continuously during work hours throughout the duration of the project.

Remove the system upon completion.

C.2 Meetings

Attend mandatory in-person/virtual pre-construction meetings with the department. Attend additional meetings as deemed necessary by the department. These meetings may be held in person or via teleconference, as scheduled by the department.

C.3 Programming

C.3.1 General

Program the Truck Entering Warning System to ensure the following general operations are performed:

1. Provide a password protected login to the ASM and all other databases.
2. Ensure the system autonomously restarts in case of any power failure.

C.3.2 System Operations Strategy

Arrange for the vendor/manufacturer to coordinate system operation, detection, and trends/thresholds with the engineer.

FBS shall be activated to give approaching traffic adequate advance warning and be activated throughout the vehicles entrance onto the highway.

C.4 Calibration and Testing

At the beginning of the project and monthly throughout the duration of the project, perform a successful field test and calibration to verify the system is accurately detecting trucks entering the highway and accurately relaying the information to the ASM and FBS.

Send email of successful calibration and testing to the engineer.

D Measurement

The department will measure Truck Entering Warning System by the day acceptably completed, measured as each complete system per access location.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV 0045.1001	Truck Entering Warning System	DAY

Payment is full compensation for providing, repositioning, operating, maintaining, monitoring, calibrating, testing, and removing the complete system consisting of FBS, PTS, ASM, and system communications.

Failure to correct a deficiency to the FBS, PTS, or ASM within 24 hours after notification from the engineer or the department will result in a one-day deduction of the measured quantity for each day in which the deficiency is not corrected.

It is the engineer's sole discretion to assess the deductions for an improperly working Truck Entering Warning System.

116. Combination Work Zone Digital Speed Limit – Speed Feedback Sign Trailer, Item SPV.0045.1002

A Description

This special provision describes furnishing, installing, repositioning, operating, maintaining, monitoring, calibrating, testing and removing a combination work zone digital speed limit – speed feedback (WZDSL-SF) trailer as the engineer directs.

B Materials

Furnish items from the department's approved proprietary products list.

B.1 Automated System Manager (ASM)

Provide an ASM that assesses current traffic data captured by the traffic sensors and displays appropriate speeds/messages to the motorists through the speed feedback sign based on predetermined speed thresholds.

B.2 Warranty

Warranty all items in the WZDSL-SF until the completion of the project.

C Construction

C.1 General

The digital speed limit shall be continuously displayed. All speeds displayed must be approved by the Engineer.

There shall not be any conflicting speed limits displayed throughout the project limits.

The Contractor will be responsible for coordinating with the Engineer when the Work Zone Speed Limits are to be changed.

Place WZDSL-SF trailer within the project limits as the Engineer directs. Move the WZDSL-SF trailer to a new location within the project limits every 21 days, or as the Engineer directs.

Placement of WZDSL-SF signs shall be on the right side of the road unless infeasible or as directed by the Engineer. Placement of signs shall not interfere with the function of existing signs or roadside devices.

Provide technical personnel for all system calibration, operation, maintenance, and timely on-call support services.

Upon notification of a deficiency in the operation of the system, or individual part of the system, corrections to the system must be made within 24 hours.

Maintain the WZDSL-SF trailer for the duration of the project or as directed by the Engineer. Ensure the system operates continuously (24 hours, 7 days a week) throughout the duration of the project.

Remove WZDSL-SF once the project is completed.

C.2 Reports

Provide an electronic copy via email of all data to the Engineer in the form of a weekly summary report that includes, at a minimum, speed data, the dates/times and locations of the speed limit changes along with their corresponding speed values. The reports shall also include the speed data in either 1 minute, 5 minute or 15 minutes bins, as directed by the Engineer.

C.3 Meetings

Attend mandatory in-person/virtual pre-construction meetings with the department. Additional meetings with the department may be required on a periodic basis. These meetings may be held in person or virtually, as scheduled by the department.

C.4 Programming

C.4.1 General

Program the WZDSL-SF to ensure that the following general operations are performed:

1. Provide a password protected login to the ASM, website and all other databases.

2. Provide real-time data from the ASM to a website and refresh every 60 seconds. The website should have a full-color mapping feature. Data on the website should be available to the department staff at all times for the duration of the work zone activity and should include:

- Vehicle speeds
- Dates and Times of Speed Limit Changes
- Device locations

3. Archive all traffic data in a Microsoft excel format with date and time stamps.

4. Configure the website to quantify system failures which includes traffic sensor malfunction, loss of power, low battery, etc.

5. Ensure the device autonomously restarts in case of any power failure.

6. Provide the department access to manually override the WZDSL-SF trailer for a user-specified duration. Document all override messages.

7. The WZDSL-SF trailer and it's remote management software shall be able to provide a real-time API feed (updated at least once a minute with any new information) conforming to the latest version of the FHWA's Work Zone Data Exchange (WZDx) (https://www.transportation.gov/data/wzdx) format as well as make the feed publicly available to any Agency-approved third parties. This feed shall include the following elements (at a minimum); Device Name, Device Position, Current Display Message and Device Status (on/offline) when the WZDSL-SF has an ACTIVE display message posted. The feed should also include the <Road_Name>, <Road_Direction>, <Mile_Marker> when possible, when on Interstate and State Highway routes.

8. A Waze compatible data push should also be provided, to allow the WZDSL-SF to be auto-located as an ON_ROAD_CONSTRUCTION (hardhat icon) alert with the following associated description (<40 characters) "WORK ZONE SPEED LIMIT - XX MPH", where XX is automatically populated with the current speed display value. The WZDSL-SF location feeds shall include all active devices. The event location shall be updated at least once a minute, if the device changes position. The event shall be removed when the Display is Blank. Waze events shall be visible on Waze web map and on smartphones generate a driver alert for an approaching motorist actively using the Waze app with notifications activated.

C.4.2 System Operation

Speed Feedback Conditions: The Speed Feedback Display shall provide the following four feedback displays depending on the speed of each approaching vehicle.

Feedback Condition 1: If an approaching vehicle is </= Posted Speed (on the above WZDSL) + 4 mph, then the display shall show the approaching vehicle's speed in large bold font visible from at least 750 feet away.

Feedback Condition 2: If an approaching vehicle is 5 to 9 mph > Posted Speed (on the above WZDSL), then the display shall Flash the approaching vehicle's speed in large bold font visible from at least 750 feet away. The flash rate shall be 5 cycles per second (0.1 second ON and 0.1 second OFF).

Feedback Condition 3: If an approaching vehicle is 10 to 14 mph > Posted Speed (on the above WZDSL), then the display shall alternate flashing the approaching vehicle's speed and the words "SLOW" and "DOWN" on three (3) separate frames in large bold font visible from at least 750 feet away. In addition, the display shall provide 4 beacons in the four (4) corners of the display that rapid flash. There shall be an option to activate or deactivate the beacons based on agency preference/practice. The flash rate of the numbers and words shall be 5 cycles per second (0.1 second ON and 0.1 second OFF) and the flash rate of the beacons (below) is 10 cycles per second.

Feedback Condition 4: If an approaching vehicle is 15 mph > Posted Speed (on the above WZDSL), then the display shall alternate flashing the words "SLOW" and "DOWN" on two (2) separate frames in large bold font visible from at least 750 feet away. In addition, the display shall provide 4 beacons in the four (4) corners of the display that rapid flash. There shall be an option to activate or deactivate the beacons based on agency preference/practice. The flash rate of the words shall be 5 cycles per second (0.1 second ON and 0.1 second OFF) and the flash rate of the beacons (below) is 10 cycles per second.

C.5 Calibration and Testing

Perform a successful field test and calibration at the WZDSL-SF trailer location to verify the system is detecting accurate vehicle speeds and accurately relaying the information to the ASM and then to the speed feedback sign at the beginning of the project.

Send email of successful calibration and testing to the Engineer.

D Measurement

The department will measure each WZDSL-SF per day.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0045.1002	Combination Work Zone Digital Speed Limit – Speed Feedback Trailer	DAY

Payment is full compensation for furnishing, installing, repositioning, operating, maintaining, monitoring, calibrating, testing, and removing the WZDSL-SF trailer.

Failure to correct a deficiency within 24 hours after notification from the Engineer or the department will result in a one day deduction of the measured quantity for each day in which the deficiency is not corrected.

Failure to correct the website within 24 hours after notification from the Engineer will result in a 10% reduction of the day quantity for each day the website is down.

It is the Engineer's sole discretion to assess the deductions for an improperly working WZDSL-SF trailer.

117. Removing Old Sign Structure S-40-927, Item SPV.0060.0001.

A General

Work under these items consists of removing existing sign structures and their concrete base foundations and disposing of resulting materials according to standard spec 203 and as hereinafter provided.

Removal of signs will be measured and paid for under other items.

B (Vacant)

C Construction

Remove and dispose of the existing superstructure (columns and overhead trusses) and concrete foundations of each sign structure.

D Measurement

The items of Removing Old Sign Structure (number) will be measured as a unit for each specific sign structure removed according to the contract.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0001	Removing Old Sign Structure S-40-927	EACH

Payment is full compensation for removing and disposing of all materials as set forth above including sign base foundations; for cutting off anchor bolts and conduits; and for sealing conduits.

118. Maintain and Salvage Crash Cushions Temporary Left In Place, Item SPV.0060.0010.

A Description

This special provision describes maintaining, salvaging and delivering temporary crash cushions left in place according to standard spec 614 and as hereinafter provided.

B Materials

Furnish any replacement materials for the temporary crash cushions left in place by others according to the pertinent requirements of standard spec 614.2

C Construction

Maintain and remove the temporary crash cushion according to standard spec 614.3.4

Salvage the crash cushions temporary left in place according to standard spec 614.3.9.

Remove and stockpile crash cushions temporarily left in place at an on-site location determined by the engineer. Give two days advance notice to Milwaukee County and Ozaukee County before starting the salvaging work to coordinate delivery arrangements. For crash cushions being delivered to Milwaukee County, contact Kevin Kent, Milwaukee County, 10320 W Watertown Plank Road, Milwaukee, WI, 53224 at (414) 454-4100.

D Measurement

The department will measure Maintain and Salvage Crash Cushions Temporary Left In Place as each individual crash cushion location, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0010	Maintain and Salvage Crash Cushions Temporary Left In Place	EACH

Payment is full compensation for maintaining, salvaging, and delivering the crash cushions.

119. Maintain and Salvage Traffic Control Signs Left In Place, Item SPV.0060.0011.

A Description

This special provision describes maintaining, salvaging and delivering Traffic Control Signs Left In Place as shown on the plans.

B Materials

Furnish any replacement materials for the temporary traffic control signs left in place by others according to the pertinent requirements of standard spec 643.2

C Construction

Maintain and remove the traffic control signs left in place according to standard spec 643.2

Salvage the traffic control signs left in place according to standard spec 643.3.

Remove and stockpile traffic control signs left in place at an on-site location determined by the engineer. Give two days advance notice to Milwaukee County and Ozaukee County before starting the salvaging work to coordinate delivery arrangements

Perform work in accordance to the pertinent provisions of section 643.3 of the standard specifications, as shown on the plans, and as hereinafter provided.

D Measurement

The department will measure Maintain and Salvage Crash Traffic Control Signs Left In Place as each individual sign location, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0011	Maintain and Salvage Traffic Control Signs Left In Place	EACH

Payment is full compensation for maintaining, salvaging, and delivering traffic control signs.

120. Maintain and Salvage Traffic Control Drums Left In Place, Item SPV.0060.0012.

A Description

This special provision describes maintaining, salvaging and delivering Traffic Control Drums Left In Place as shown on the plans

B Materials

Furnish any replacement materials for the temporary traffic control drums left in place by others according to the pertinent requirements of standard spec 643.2

C Construction

Maintain and remove the traffic control drums left in place according to standard spec 643.2

Salvage the traffic control drums left in place according to standard spec 643.3.

Remove and stockpile traffic control drums left in place at an on-site location determined by the engineer. Give two days advance notice to Milwaukee County and Ozaukee County before starting the salvaging work to coordinate delivery arrangements

Perform work in accordance to the pertinent provisions of section 643.3 of the standard specifications, as shown on the plans, and as hereinafter provided.

D Measurement

The department will measure Maintain and Salvage Crash Traffic Control Drums Left In Place as each individual drum location, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0012	Maintain and Salvage Traffic Control Drums Left In Place	EACH

Payment is full compensation for maintaining, salvaging, and delivering traffic control drums.

121. Maintain and Salvage Traffic Control Warning Lights Type A Left In Place, Item SPV.0060.0013.

A Description

This special provision describes maintaining, salvaging and delivering Traffic Control Warning Lights Type A Left In Place as shown on the plans

B Materials

Furnish any replacement materials for the temporary traffic control drums left in place by others according to the pertinent requirements of standard spec 643.2

C Construction

Maintain and remove the traffic control warning lights type A left in place according to standard spec 643.2

Salvage the traffic control warning lights type A left in place according to standard spec 643.3.

Remove and stockpile traffic control warning lights type A left in place at an on-site location determined by the engineer. Give two days advance notice to Milwaukee County and Ozaukee County before starting the salvaging work to coordinate delivery arrangements

Perform work in accordance to the pertinent provisions of section 643.3 of the standard specifications, as shown on the plans, and as hereinafter provided.

D Measurement

The department will measure Maintain and Salvage Crash Traffic Control Warning Lights Type A Left In Place as each individual warning light type A location, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0013	Maintain and Salvage Traffic Control Warning Lights Type A Left In Place	EACH

Payment is full compensation for maintaining, salvaging, and delivering traffic control Warning Lights Type A.

122. Maintain and Salvage Traffic Control Barricades Type III Left In Place, Item SPV.0060.0014.

A Description

This special provision describes maintaining, salvaging and delivering Traffic Control Barricades Type III Left In Place as shown on the plans

B Materials

Furnish any replacement materials for the temporary traffic control barricades type III left in place by others according to the pertinent requirements of standard spec 643.2

C Construction

Maintain and remove the traffic control barricades type III left in place according to standard spec 643.2

Salvage the traffic control barricades type III left in place according to standard spec 643.3.

Remove and stockpile traffic control barricades type III left in place at an on-site location determined by the engineer. Give two days advance notice to Milwaukee County and Ozaukee County before starting the salvaging work to coordinate delivery arrangements

Perform work in accordance to the pertinent provisions of section 643.3 of the standard specifications, as shown on the plans, and as hereinafter provided.

D Measurement

The department will measure Maintain and Salvage Crash Traffic Control Barricades Type III Left In Place as each individual barricade type III location, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0014	Maintain and Salvage Traffic Control Barricades Type III Left In Place	EACH

Payment is full compensation for maintaining, salvaging, and delivering traffic control Barricades Type III.

123. Concrete Barrier Transition Type G1, Item SPV.0060.0101; Type G2, Item SPV.0060.0102.

A Description

This special provision describes constructing Concrete Barrier Transition (Type) in accordance to standard spec 603, details shown in the plans, and as hereinafter provided.

B (Vacant)

C (Vacant)

D Measurement

The department will measure Concrete Barrier Transition (Type) by each individual unit, acceptably placed in accordance to the contract.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0101	Concrete Barrier Transition Type G1	Each
SPV.0060.0102	Concrete Barrier Transition Type G2	Each

124. Inlets Type Tee Special, Item SPV.0060.0106

A Description

This special provision describes furnishing and installing inlets in accordance to the pertinent provisions of section 611 of the standard specifications, as shown on the plans and as hereinafter provided.

B Materials

Conform to section 611.2 of the standard specifications.

C Construction

Construct Inlets Type Tee Special to the dimensions specified in the plans.

D Measurement

The department will measure Inlets Type Tee Special as each individual unit acceptably completed.

E Payment

Department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0106	Inlets Type Tee Special	Each

Payment is full compensation for providing all materials, including all masonry for chimney and pipe, sewer connections, steps and other fittings; for all excavating, backfilling, disposing of surplus material, and for cleaning out and restoring the work site; for all covers, including frames, grates and lids; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the contract work.

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125. Temporary Storm Sewer Plug, Item SPV.0060.0107

A Description

Install a Storm Sewer Plug at locations specified in the plans

B Materials

Provide a precast reinforced concrete plug or an engineer approved alternative, conforming to the inside diameter of the corresponding pipe as shown on the plan.

All materials, if concrete, must conform to section 501 and section 611 of the standard specifications.

C Construction

Place a watertight plug in the end of the storm sewer pipe in a manner that seals the pipe, but allows for future removal of plug without damaging the storm sewer pipe.

D Measurement

The department will measure Storm Sewer Plug as each individual unit acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0107	Storm Sewer Plug	EACH

Payment is full compensation for furnishing and installing all required materials; and for furnishing all tools, labor, equipment and incidentals required to complete the work.

126. Reconnect Storm Sewer, Item SPV.0060.0110.

A Description

This special provision describes connecting new storm sewer pipe or structures to existing storm sewer pipe or structures. This special provision also describes connecting a new manhole or inlet to existing pipe.

B (Vacant)

C Construction

Remove existing concrete collars, pipe seals or end walls constructed under previous projects or in earlier stages of this project. Verify that positive drainage is achieved when connecting new pipe to existing structures or storm sewer. If necessary reset pipe stubs or sections of existing pipe to ensure positive drainage. Salvage any structurally sound pipe that requires removal if prior approval is granted by the engineer. Connect the new pipe or structure to the existing pipe or structures with the appropriate coupling, concrete collar or by means approved by the engineer. Use concrete masonry for concrete collar conforming to standard spec 520.2.4.

D Measurement

The department will measure Reconnect Storm Sewer as each new pipe or structure connection to existing pipe or structure, acceptably completed. Measurement will include connections of new pipe or structures to pipe or structures placed in previous stages of the project, in addition to pipe or structures constructed under previous projects.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0110	Reconnect Storm Sewer	EACH

Payment is full compensation for performing all work; removing seals, end walls and concrete collars, providing all materials, coring, couplings, concrete collars. Any additional pipe or materials required to reconnect the storm sewer shall be considered incidental to this bid item. The new pipe and removal of the existing pipe will be paid separately under their respective bid items.

127. Mobilizations Emergency Pavement Repair, Item SPV.0060.0120.

A Description

This special provision describes furnishing and mobilizing personnel, equipment, traffic control, and materials to the project site to repair the existing pavement for emergencies as the engineer directs. An emergency is a sudden occurrence of a serious and urgent nature, beyond normal maintenance of the existing pavement.

B (Vacant)

C Construction

Mobilize with sufficient personnel, equipment, traffic control, materials, and incidentals on the jobsite within 4 hours of the engineer's written order to repair the existing pavement on an emergency basis.

D Measurement

The department will measure Mobilizations Emergency Pavement Repair as each individual mobilization acceptably completed. The department will not include delivering and installing pavement repair or maintenance materials provided for in specific contract bid items. All traffic control items used for each Mobilization will be considered incidental to the Mobilization.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0120	Mobilizations Emergency Pavement Repair	EACH

Payment is full compensation for the staged moving of personnel, moving equipment, setting up and removing traffic control, traffic control materials, and moving materials. The department will pay separately for delivery and installation of pavement repair materials under the other bid items in this contract. The department will not pay separately for traffic control items and materials even though they may be included in other bid items in this contract and will consider them incidental to each Mobilization.

sef-999-025 (20170310)

128. Section Corner Monuments Special, Item SPV.0060.0125.

A Description

Coordinate with Southeastern Wisconsin Regional Planning Commission (SEWRPC) for the perpetuation and replacement of a section corner (Public Land Survey System- PLSS) monument.

Contact the engineer and SEWRPC John Washburn at the contact information in this special provision at least two weeks prior to work near any section corner monument.

B Materials

SEWRPC will provide a pre-cast concrete monument or brass disk to be used to mark the PLSS corner.

Furnish base aggregate dense materials conforming to standard spec 305 and concrete, asphalt, topsoil or other materials depending on the surface surrounding the corner.

C Construction

SEWRPC will perpetuate existing section corner monument. The CONTRACTOR is responsible to coordinate with SEWRPC and the WisDOT Project Manager throughout the perpetuation and replacement process. The engineer will contact SEWRPC at (262) 953-4295 at least two weeks before starting construction operations or the preconstruction meeting to allow for section corner monument perpetuation.

Excavate and completely remove the existing monument. Provide a backfilled 3 to 4 foot deep hole where existing monument was removed. Coordinate the materials and methodology to complete the construction of the surface surrounding the monument. This may include, but is not limited to, a 2-Foot x 2-Foot “box out” or 24-Inch diameter core hole in concrete, asphalt pavement/paving rings, coring to facilitate poured in place monuments, topsoil, seed and mulching or other materials or methodologies as agreed to by SEWRPC.

Contact Information:

Attn: Rob Merry

Southeastern Wisconsin Regional Planning Commission

W239 N1812 Rockwood Drive

P.O. Box 1607

Waukesha, WI 53187-1607

Phone (262)953-4289

Cell (920)912-1036

Fax (262)547-1103

E-mail: rmerry@sewrpc.org

Jon Edgren (Public Works Director/Highway Commissioner)

Ozaukee County Highway Department

410 S. Spring Street

P.O. Box 994

Port Washington, WI 53074-0994

Phone: (262) 284-8331

jedgren@co.ozaukee.wi.us

D Measurement

The department will measure Section Corner Monuments Special by the individual unit acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0125	Section Corner Monuments Special	Each

Payment is full compensation for all excavating; removal of existing monument, for placing and compacting backfill material; for disposing of surplus materials; for concrete or asphalt material, finishing of roadway or other surfaces and for all coordination with SEWRPC.

129. Fastening Sewer Access Covers, Item SPV.0060.0200.

A Description

This special provision describes sealing, maintaining, and removing sealant for sewer access covers.

B Materials

Furnish preformed butyl rubber based sealant conforming to ASTM C990 Section 6.2. Size the preformed joint sealant to fill the joint to 50% of its annular volume when assembled.

C Construction

Open the sewer access cover, inspect the frame and grate, and remove material that will interfere with the sealant application from the cover and casting. Apply sealant in a continuous ring around the frame without stretching. Knead the ends together with no overlap.

Monitor performance during the project and maintain as needed. Remove sealant after traffic is shifted into its final configuration.

D Measurement

The department will measure Fastening Sewer Access Covers as each individual cover, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0200	Fastening Sewer Access Covers	EACH

Payment is full compensation for providing and maintaining sealed covers; and removing sealant.

sef-611-015 (20180104)

130. Storm Sewer Pipe PVC, 6-Inch, Item SPV.0060.0201.

A Description
This special provision describes furnishing and installing 6” PVC storm sewer.

B Materials
Conform to section 612.2.6 of the standard specifications.

C Construction
Conform to standard spec 612.3

D Measurement
The department will measure Storm Sewer Pipe PVC 6 Inch by the linear foot, acceptably completed.

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0201	Storm Sewer Pipe PVC 6 Inch	LF

Payment is full compensation for furnishing and installing all required materials, fittings, elbows, connections, tees; and for furnishing all tools, labor, equipment and incidentals required to complete the work.

131. Manhole, 10X10-FT SPV.0060.0208

A Description

This special provision describes furnishing and installing 10-FT x 10-FT box manhole.

B Materials

Furnish concrete manhole structures that are in accordance to sections 501 and 611 of the standard specifications and as shown on the plans.

C Construction

Field verify all existing connections.

Conform to standard spec 611.

D Measurement

The department will measure Manhole 10X10-FT by each unit acceptably completed

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0208	Manhole 10X10-FT	EACH

Payment is full compensation for furnishing and installing Manhole 10X10-FT and all incidentals to complete the work.

132. Riser Pipe Grate, Item SPV.0060.0210

A Description

This special provision describes furnishing and installing a galvanized steel pipe grate for the Manhole 10 FTx10-FT Riser Pipe.

B Materials

Furnish steel conforming to the requirements of standard spec 506.2.2.1. Furnish pipe grate, angles, and brackets galvanized according to ASTM A123. Furnish required hardware galvanized according to ASTM A153.

C Construction

Embed steel adhesive anchors to a minimum depth of 5”.

Conform to standard spec 611.

D Measurement

The department will measure Riser Pipe Grate by each unit acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0210	Riser Pipe Grate	EACH

Payment is full compensation for furnishing and installing the Riser Pipe Grate and all incidentals to complete the work.

133. Baseline CPM Progress Schedule, Item SPV.0060.0601; Monthly CPM Progress Schedule Updates, Item SPV.0060.0602.

Replace standard spec 108.4 with the following:

108.4 Critical Path Method Progress Schedule

108.4.1 Definitions

The department defines terms used in 108.4 as follows:

Activity An administrative or construction task performed during the course of the project with a defined duration, and scheduled (or actual) start and finish dates.

Critical Path The longest continuous chain of activities through the CPM schedule that establishes the minimum overall project duration.

Construction Activity	Construction activities are discrete work activities performed by the contractor, subcontractors, utilities, or third parties within the project limits.
CPM Progress Schedule	A Critical Path Method (CPM) Progress Schedule is a network of logically related activities. The CPM schedule calculates when activities can be performed and establishes the critical or longest continuous path or paths of activities through the project.
Float	Float, as used in this special provision, is the total float of an activity; i.e., it is the amount of time between the date when an activity can start (the early start), and the date when an activity must start (the late start). In cases where the total float of an activity has a different value when calculated based on the finish dates, the lower (more critical) value will govern.
Forecast Completion Date	The completion date predicted by the latest accepted CPM Update, which may be earlier or later than the contract completion date, depending on progress.
Fragnet	A group of logically-related activities, typically inserted into an existing CPM schedule to model a portion of the project, such as the work associated with a change order.
Initial Work Plan	The initial work plan is a time-scaled CPM schedule showing detailed activities for the first 90 calendar days of work and summary level activities for the remainder of the project.
Intermediate Milestone Date	A contractually required date for the completion of a portion of the work, so that a subsequent portion of the work or stage of traffic phasing may proceed.
Department's Project Schedule Template	The department's project schedule template for the overall IH 43 North South Freeway Program, including interim and final contract completion dates, and containing codes for use as a template for the development of the contractor's schedule.
Work Breakdown Structure (WBS)	A framework for organizing the activities that make up a project by breaking the project into successively greater detail by level. A WBS organizes the project work. It does not address the sequencing and scheduling of project activities.

108.4.2 Department's Project Schedule Template

108.4.2.1 Project Schedule

Within five business days after award, the department will provide its current Project Schedule Template, containing intermediate milestone constraints, standard activity codes, and a standard WBS for the contractor to use to develop its schedule.

108.4.2.2 Use of Project Schedule Template

The Project Schedule Template provides information to assist the contractor in preparing its schedule. The Project Schedule Template is not a contract document. The logic contained in the Project's Schedule Template is not intended to alter or supplement contract requirements for the phasing of the work, but to reflect those requirements.

108.4.3 Contractor's Scheduling Responsibilities

Prepare and submit a CPM progress schedule that accurately reflects the plan for the performance of the work, based on the physical requirements of the Work, and Traffic Phasing requirements. The CPM schedule is the contractor's committed plan to complete all work within the completion deadlines. Full responsibility is assumed for the prosecution of the work as shown. The CPM schedule is not part of the contract. Schedule the Work in the manner required to achieve the completion date and interim completion dates specified in the Prosecution and Progress Special Provision. The contractor will schedule and attend a CPM Initial Workshop. If necessary, the engineer may modify the workshop schedule to ensure attendance by the necessary department and contractor personnel; however, the CPM Initial Workshop must be completed prior to issuing the Notice to Proceed. The CPM Initial workshop will include:

1. Department presentation of the use of CPM scheduling on the project and presentation of the department's master schedule.

2. Contractor presentation of the conceptual work plan for the project.

3. Department and contractor discussion of the level of detail on features in the CPM Initial Work Plan and the Baseline CPM Progress Schedule.

Use the department-provided Project Schedule Template to develop the Initial Work Plan and the Baseline CPM Progress Schedule. Use the Project's Schedule Template ID coding structure to categorize activities by Contract, Stage, Location, and Responsibility to ensure compatibility with the Project Schedule Template and with schedules prepared by other contractors. Add additional activity codes as necessary, but do not delete the coding structure provided.

To ensure compatibility with the Project Schedule Template, use the latest version of Primavera P6 Project Management, by Oracle Corporation, Redwood Shores, CA, to prepare the Initial Work Plan, Baseline CPM Progress Schedule, and Monthly CPM Updates.

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

108.4.4 Submittals

108.4.4.1 Initial Work Plan

Within ten business days after the CPM Initial Work Plan Workshop, submit an Initial Work Plan as follows:

1. Develop the Initial Work Plan using the Project Schedule Template. Identify the contemplated start and completion dates for each activity.
2. Provide a detailed plan of activities to be performed within the first 90 calendar days of the contract. Provide construction activities with durations not greater than 28 calendar days (20 business days), unless the engineer accepts requested exceptions.
3. Provide activities as necessary to depict administrative work, including submittals, reviews, and procurements that will occur within the first 90 calendar days of the contract. Show additional activities that require department review or approval. Activities other than construction activities may have durations greater than 28 calendar days (20 business days). Allow 21 calendar days (15 business days) for department review of submittals.
4. Provide summary activities for the balance of the project. Summary activities may have durations greater than 28 calendar days (20 business days).
5. Submit electronic copies of the Initial Work Plan and the corresponding Oracle Primavera P6 schedule (XER) in a format acceptable to the engineer.
6. The engineer will accept the contractor's Initial Work Plan or provide comments within five business days after receipt of the Initial Work Plan. Address comments and resubmit the Initial Work Plan as necessary. Do not begin work until the engineer accepts the Initial Work Plan. The department will use the initial work plan to monitor the progress of the work until the Baseline CPM Progress Schedule is accepted.
7. Submit an updated version of the Initial Work Plan monthly until the engineer accepts the Baseline CPM Progress Schedule. With each update, include actual start dates, completion percentages, and remaining durations for activities started but not completed. Include actual finish dates for completed activities.
8. Ensure the Initial Work Plan shows completing the work within the interim completion dates and specified completion date.
9. Include activities that describe essential features of the work and activities that might potentially delay contract completion. Identify activities that are controlling items of work.

108.4.4.2 Baseline CPM Progress Schedule

Within 15 business days after the CPM Initial Workshop, submit a Baseline CPM Progress Schedule and written narrative. The department will use the schedule to monitor the progress of the work.

1. Develop the Baseline CPM using the Project Schedule Template. The Baseline CPM is the contractor's committed plan to complete the Work within the time frames required to achieve the contract completion date and intermediate milestone dates.
    1.1. Provide a detailed plan of activities to be performed during the entire contract duration, including all administrative and construction activities required to complete the work as described in the contract documents. Provide construction activities with durations not greater than 28 calendar days (20 business days), unless the engineer accepts requested exceptions.
    1.2. Provide activities as necessary to depict administrative work, including submittals, reviews, procurements, inspections, and all else necessary to complete the work as described in the contract documents. Activities other than construction activities may have durations greater than 28 calendar days (20 business days). Allow 21 calendar days (15 business days) for department review of submittals.

1.3. Submit a temporary drainage plan showing the interface between various stages of a project as well as the interface with adjacent projects.

1.4. Include activities that describe essential features of the work and activities that might potentially delay contract completion. Identify activities that are controlling items of work.

1.5. Show completing the work within interim completion dates and the specified completion date.

1.6. Provide summary activities for the balance of the project. Summary activities may have durations greater than 28 calendar days (20 business days).

1.7. Provide activities as necessary to depict third party work related to the contract.

1.8. Make allowance for specified work restrictions, non-working days, time constraints, calendars, and weather; and reflect involvement and reviews by the department, and coordination with adjacent contractors, utility owners, and other third parties.

1.9. With the exception of the Project Start Milestone and Project Completion Milestone, all activities must have predecessors and successors. The start of an activity shall have a Start-to-Start or Finish-to-Start relationship with preceding activities. The completion of an activity shall have a Finish-to-Start or Finish-to-Finish relationship with succeeding activities. Do not use Start-to-Finish relationships. Do not use Finish-to-Start relationships with a lag unless the engineer accepts requested exceptions.

1.10. Schedule all intermediate milestones in the proper sequence and input as either a "Start-no-Earlier-Than" or "Finish-no-Later-Than" date. Provide predecessors and successors for each intermediate milestone as necessary to model each Stage of the Work. Unless the engineer accepts a requested exception, the schedule should encompass all the time in the contract period between the starting date and the specified completion date.

1.11. Using the bid quantities and unit prices, develop an anticipated cash-flow curve for the project, based on the Baseline CPM.

2. Provide three hard copies of a hand-drawn or electronically drafted logic diagram depicting the CPM network. Organize the logic diagram by grouping related activities, based on the activity codes in the CPM.

3. Provide a written narrative with the baseline CPM explaining the planned sequence of work, as-planned critical path, critical activities for achieving intermediate milestone dates, traffic phasing, and planned labor and equipment resources. Use the narrative to further explain:

3.1. The basis for activity durations in terms of production rates for each major type of work (number of shifts per day and number of hours per shift), and equipment usage and limitations.

3.2. Use of constraints.

3.3. Use of calendars.

3.4. Estimated number of adverse weather days on a monthly-basis.

3.5. Scheduling of permit and environmental constraints, and coordination of the schedule with other contractors, utilities, and public entities.

Submit electronic copies of the Baseline CPM and the corresponding Oracle Primavera P6 schedule file (XER) in a format acceptable to the engineer.

Within ten business days of receiving the Baseline CPM, the engineer will provide comments and schedule a meeting for the contractor to present its Baseline CPM and answer questions raised in the engineer's review.

At the meeting scheduled by the engineer, provide a presentation of the Baseline CPM. In the presentation, include a discussion of the staging and sequencing of the work, understanding of traffic phasing, and application of labor and equipment resources to the Work. Address comments raised in the engineer's review.

Within five business days after the meeting, the engineer will accept the contractor's Baseline CPM schedule or provide comments. Address the engineer's comments and resubmit a revised Baseline CPM within ten business days after the engineer's request. If the engineer requests justification for activity durations, provide information that may include estimated labor, equipment, unit quantities, and production rates used to determine the activity duration.

The department will only make progress payments for the value of materials, as specified in 109.6.3.2, until the contractor has submitted the Baseline CPM Schedule. The department will retain 10 percent of each estimate until the department accepts the Baseline CPM Schedule.

The engineer will accept the Baseline CPM based solely on whether the schedule is complete as specified in this section. The engineer's acceptance of the schedule does not modify the contract or validate the schedule.

The department will not consider requests for contract time extensions as specified in 108.10 or additional compensation for delay specified in 109.4.7 until the department accepts the Baseline CPM schedule.

108.4.4.3 Monthly CPM Updates

Submit CPM Updates on a monthly basis after acceptance of the Baseline CPM as follows:

1. Include actual start dates, completion percentages, and remaining durations for activities started but not completed, and actual finish dates for completed activities, through the final acceptance of the project.
2. Include additional activities as necessary to depict additions to the contract by changes and logic revisions as necessary to reflect changes in the contractor's plan for prosecuting the work.
3. Include a narrative report that includes a brief description of monthly progress, changes to the critical path from the previous update, sources of delay, potential problems, work planned for the next 30 calendar days, and changes to the CPM schedule. Changes to the logic of the CPM schedule include the addition or deletion of activities and changes to activity descriptions, original durations, relationships, constraints, calendars, or previously recorded actual dates. Justify changes to the CPM schedule in the narrative by describing associated changes in the planned methods or manner of performing the work or changes in the work itself.
4. Submit electronic copies of each CPM Update and the corresponding Oracle Primavera P6 schedule file (XER) in a format acceptable to the engineer.
5. If additions or changes were made to the CPM schedule since the previous update, submit an updated hard copy of the revised logic diagram.

Within five business days of receiving each CPM Update, the engineer will provide comments and schedule a meeting as necessary to address comments raised in the engineer's review. Address the engineer's comments and resubmit a revised CPM Update within five business days after the engineer's request.

108.4.4.4 Three-Week Look-Ahead Schedules

Submit Three-Week Look-Ahead Schedules on a weekly basis after the notice to proceed (NTP). The schedule can be hand drawn or generated by computer. With each Three-Week Look-Ahead include:

1. Activities underway and as-built dates for the past week.
2. Actual as-built dates for completed activities through final acceptance of the project.
3. Planned work for the upcoming two-week period.
4. The activities underway and critical RFIs and submittals, based on the CPM schedule.
5. Details on other activities not individually represented in the CPM schedule.

On a weekly basis, the department and the contractor shall agree on the as-built dates depicted in the Three-Week Look-Ahead schedule or document all disagreements. Use the as-built dates from the Three-Week Look-Ahead schedules for the month when updating the CPM schedule.

108.4.4.5 Weekly Production Data

Provide estimated and actual weekly production rates for items of work on a weekly basis as follows:

1. Data on the following items by area or station:
    1.1. Roadway Excavation—CY per week
    1.2. Roadway Structural Section
        1.2.1. Grading/Subgrade Preparation—SY
        1.2.2. Base Material Placement—Ton
        1.2.3. Base Material Subgrade Preparation—SY
        1.2.4. Asphalt Pavement—Ton
        1.2.5. Concrete Pavement – SY
2. The actual daily production for the past week and the anticipated weekly production for the next week.

Submit the data in an electronic spreadsheet format at the same time the Three-Week Look-Ahead is submitted. On a weekly basis, the department and the contractor shall agree on the production data or document all disagreements.

108.4.5 Progress Review Meetings

108.4.5.1 Weekly Progress Review Meetings

After completing the weekly submittal of the Three-Week Look-Ahead and production data, attend a weekly meeting to review the submittals with the department. At the meeting, address comments as necessary, and document agreement or disagreement with the department.

108.4.5.2 Monthly Update Review Meetings

After submitting the monthly update and receiving the engineer's comments, attend a job-site meeting, as scheduled by the engineer, to review the progress of the schedule. At that meeting, address comments

as necessary, and document agreement or disagreement with the department. The monthly meeting will be coordinated to take place on the same day and immediately before or after a weekly meeting, whenever possible.

108.4.6 CPM Progress Schedule Revisions

Revision by the contractor if necessary due to changes in the Work or project conditions and authorized by the engineer, a CPM Progress Schedule Revision may be submitted, although the next Monthly CPM Update is not yet due. Prepare the CPM Revision in the same format as required for Monthly CPM Updates, including justification for changes to the schedule. The process for comment and acceptance of a CPM Revision will be the same as for Monthly CPM Updates. If the CPM Revision is accepted, prepare the next monthly update based on the revised CPM. If the CPM Revision is rejected, prepare the next monthly update based on the previous month's update.

Engineer's Right to Request Revisions—The engineer will monitor the progress of the work and may request revisions to the CPM schedule. Revise the schedule as requested by the engineer, and submit a CPM Progress Schedule Revision within ten business days of the request. The process for comment and acceptance of a CPM Revision will be the same as for Monthly CPM Updates. The engineer may request that the contractor revise the CPM schedule for one or more of the following reasons:

1. The forecast completion date is scheduled to occur more than 14 calendar days after the contract completion date.
2. An intermediate milestone is scheduled to occur more than 14 calendar days after the date required by the contract.
3. The engineer determines that the progress of the work differs significantly from the current schedule.
4. A contract change order requires the addition, deletion, or revision of activities that causes a change in the contractor's work sequence or the method and manner of performing the work.

108.4.7 Documentation Required for Time Extension Requests

To request a time extension to an intermediate milestone date or the contract completion date associated with changes to the work, provide a narrative detailing the work added or deleted and the other activities affected, based on the latest accepted CPM Update. For added work, submit a proposed fragnet of activities to be added or revised in the CPM schedule, indicating how the fragnet is to be tied to the CPM schedule.

To request a time extension to an intermediate milestone date or the contract completion date associated with delays to the work, provide a narrative detailing the affected activities and the cause of the delay, based on the latest accepted CPM Update. Requests for time extensions due to delays should meet the following criteria:

1. For requests to extend the contract completion date, include a description of how the delay affected the project's critical path, based on the latest accepted CPM Update.
2. For requests to extend an intermediate milestone date, include a description of how the delay affected the controlling (longest) path to the milestone, based on the latest accepted CPM Update.
3. The department and the contractor agree that the float is not for the exclusive use or financial benefit of either party. Either party has the full use of the float on a first come basis until it is depleted.

108.4.8 Payment for CPM Progress Schedule

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0601	Baseline CPM Progress Schedule	EACH
SPV.0060.0602	Monthly CPM Progress Schedule Updates	EACH

The department will only make progress payments for the value of materials, as specified in 109.6.3.2.1, until the Baseline CPM schedule has been submitted. The department will retain ten percent of each estimate until the department accepts the Baseline CPM schedule.

The department will only make progress payments for the value of materials, as specified in 109.6.3.2.1, until the Monthly CPM schedule updates have been submitted. The department will retain ten percent of each estimate until the department accepts the Monthly CPM schedule update.

Payment is full compensation for all work required under these bid items. The department will pay the contract unit price for the Baseline CPM schedule after the department accepts the schedule. Then, the department will pay the contract unit price for each Monthly CPM Update acceptably completed.

134. Port Washington Pond Outlet Storm Sewer Structure, Item SPV.0060.0700.

A Description

Furnish and install pond outlet Storm Sewer Structure according to the pertinent provisions of standard spec 611, as shown on the plans and as hereinafter provided. Furnish and install trash racks on the outlet Storm Sewer Structure. Furnish and install trash racks according to the pertinent provisions of standard specs 506 and 513, as shown on the plans and as hereinafter provided. Provide orifice holes and anti-seep collar as shown on the plan. Provide G according to standard specifications. Bottom of structure to include 1' sump at elevation 718.25.

B Materials

Furnish manhole materials according to standard spec 611.

Furnish steel conforming to the requirements of standard spec 506.2.2.1. Furnish steel galvanized according to ASTM A123 and ASTM 1153 as applicable.

Trash racks shall be fabricated from structural steel shapes, flat bar and plates and shall be galvanized after fabrication. Shop drawings for the trash racks shall be submitted to the engineer for approval prior to fabricating the trash racks.

Furnish bolts, nuts and washers for the installation of the trash racks onto the Outlet Storm Sewer Structures. Bolts, nuts and washers according to standard spec 513.2.2.5.

C Construction

Conform to standard spec 611.3.

D Measurement

The department will measure Port Washington Pond Outlet Storm Sewer Structure as each individual unit, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0700	Port Washington Pond Outlet Storm Sewer Structure	EACH

Payment is full compensation for providing and placing all materials, including all masonry, steel and pipe connections, and other fittings; furnishing and installing trash racks; for providing orifice holes and anti-seep collars; for furnishing all excavating, riprap, backfilling, disposing of surplus material, and for cleaning out and restoring the work site.

135. Corrugated Metal Anti-Seep Collar, Item SPV.0060.0701

A Description

This special provision describes furnishing and installing a corrugated metal aluminum coated collar for the pond outlet pipe.

B Materials

Fabrication shall be from Type 2 aluminum coated sheet steel conforming to AASHTO M 274. The steel plate shall be 1/4-inch minimum thickness. Waterproof mastic joint sealer shall conform to section 608.2.1 (2) of the standard specifications.

The contractor may substitute Type 2 aluminum coated sheet steel for Bentonite conforming to:

7. **Tests**[1]	8. **Method**[2]	9. **20%/80% CBA**[3]

10. Visual Classification - Practice for Description and Identification of Soils	11. ASTM D2488	12. Gray poorly graded gravel with bentonite coating (GP)
13. Moisture Content[4]	14. ASTM D2216, AASHTO T265	15. 10-20%
16. Dry Bulk Density	17. ASTM C29	18. 75-85 pcf
19. Specific Gravity[5]	20. ASTM D854, AASHTO T100	21. 2.63
22. Atterberg Limits - Liquid Limit	23. ASTM D4318, AASHTO T89	24. 55%

C Construction

Extend the collar dimensions a minimum of 1 foot vertically above the pipe and 2-1/4 feet in all other directions around the outside of the pipe or beyond the limits of the trench backfill whichever is greater, measured perpendicular to the pipe.

Seal the gap between the Detention Pond Corrugated Metal Anti-Seep Collar and the pipe according to section 608.3.4 (4) of the standard specifications.

Center the Corrugated Metal Anti-Seep Collar in the middle of the detention pond berm as shown on the plans.

D Measurement

The department will measure Detention Pond Corrugated Metal Anti-Seep Collar by each unit acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0701	Corrugated Metal Anti-Seep Collar	EACH

Payment is full compensation for furnishing and installing the aluminum coated corrugated steel collar and all incidentals to complete the work.

136. Traffic Control Full Freeway Closure, Item SPV.0060.0918.

A Description

This special provision describes closing and re-opening a freeway or expressway.

B (Vacant)

C Construction

Install or reposition traffic control devices required for a full freeway closure. Remove or return traffic control devices to their previous configuration when the full closure is no longer required.

D Measurement

The department will measure Traffic Control Full Freeway Closure by each individual freeway closure that is set up and later removed in each traffic direction acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0918	Traffic Control Full Freeway Closure	EACH

Payment is full compensation for closing, and re-opening the freeway. Traffic Control devices will be paid separately.

sef-643-003 (20180627)

137. Emergency Response to Traffic Involving Concrete Barrier Temporary, Item SPV.0060.0940.

A Description

This special provision describes providing prompt response to an emergency repair request for damaged and/or dislodged temporary concrete barrier installed under this project that is damaged or displaced due to a vehicular collision during the time this contract is in effect.

B (Vacant)

C Construction

The contractor shall provide staff, equipment, and materials to the incident site within one hour of receiving a repair request from the responding agency. The contractor shall consult with the department's representative on potential repair or replacement options to restore the temporary concrete barrier to proper working condition. Staff and equipment deployed shall be capable of completing the needed repairs as quickly as possible once repair work is started. Repair work shall be completed off the traveled way to the maximum extent allowable. The contractor shall provide a time log of when the repair request was received and when staff arrived at the incident site. This information shall be submitted to the engineer, for verification, within 24 hours of the repair completion.

Contact information for the contractor's responsible party (the person or persons in charge of coordinating and completing repair efforts) shall be submitted to the engineer at the pre-construction meeting. This person(s) shall be available 24/7 during the duration of this contract. The contact information for the department's representative will be supplied to the contractor at the pre-construction meeting.

If the contractor fails to be on-site of an incident with appropriate staff and equipment within one hour of receiving a repair request, the department will assess the contractor $500 in liquidated damages for each 15-minute interval that the contractor is not present following the allotted one-hour response time. Increments of 15 minutes or less will be assessed as a 15-minute increment. The engineer, or designated representative, will be the sole authority in determining assessable 15-minute increments. Liquidated damages will be assessed under the administrative item Failing to Open Road to Traffic.

For contractor owned temporary barrier, repair work shall be completed according to standard spec 603 and 643, and as directed by the engineer. For temporary barrier left in place from a previous project, repair work is covered under article Maintain and Remove Concrete Barrier Temporary Precast of these special provisions.

Additional traffic control measures may be required depending on the severity and duration of the incident. The contractor shall provide any needed traffic control measures as directed by the department's representative.

D Measurement

The department will measure Emergency Response to Traffic Involving Concrete Barrier Temporary as each individual response, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0940	Emergency Response to Traffic Involving Concrete Barrier Temporary	Each

Payment is full compensation for providing a prompt staff response to an emergency repair request for a damaged crash cushion device located within the project limits.

The cost of providing the appropriate level of on-call staff for 24/7 incident response shall be included in the Mobilization bid item for this project.

The department will pay for any additional traffic control measures, if required, under the respective traffic control bid items in the contract.

138. Emergency Response to Traffic Involving Crash Cushion, Item SPV.0060.0945.

A Description

This special provision describes providing prompt response to an emergency repair request involving a damaged crash cushion installed under this project that is displaced or damaged due to a vehicular collision during the time this contract is in effect.

B (Vacant)

C Construction

The contractor shall provide appropriate staff to the incident site within one hour of receiving a repair request from the responding agency. Staff deployed shall be capable of immediately assessing the severity of the damage to the device and consult with the department's representative on potential repair or replacement options and the projected timeline to restore the roadside device to its proper working condition. The contractor shall provide a time log of when the repair request was received and when staff arrived at the incident site. This information shall be submitted to the engineer, for verification, within

24 hours of the repair completion.

Contact information for the contractor's responsible party (the person or persons in charge of coordinating repair efforts) shall be submitted to the engineer at the pre-construction meeting. This person(s) shall be available 24/7 during the duration of this contract. The contact information for the department's representative will be supplied to the contractor at the pre-construction meeting.

If the contractor fails to be on-site of an incident with appropriate staff within one hour of receiving a repair request, the department will assess the contractor $500 in liquidated damages for each 15-minute interval that the contractor is not present following the allotted one-hour response time. Increments of

15 minutes or less will be assessed as a 15-minute increment. The engineer, or designated representative, will be the sole authority in determining assessable 15-minute increments. Liquidated damages will be assessed under the administrative item Failing to Open Road to Traffic.

Repair work shall be completed according to standard spec 614, and as directed by the engineer. Once repair work has been started, work shall continue until completion. Repair work shall be completed off the traveled way to the maximum extent allowable.

Additional traffic control measures may be required depending on the severity and duration of the incident. The contractor shall provide any needed traffic control measures as directed by the department's representative.

D Measurement

The department will measure Emergency Response to Traffic Involving Crash Cushion as each individual response, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.0945	Emergency Response to Traffic Involving Crash Cushion	Each

Payment is full compensation for providing prompt response to an emergency repair request for damaged and/or dislodged temporary concrete barrier located within the project limits.

The cost of providing the appropriate level of on-call staff, equipment, and materials for 24/7 incident response shall be included in the Mobilization bid item for this project.

The department will pay for any additional traffic control measures, if required, under the respective traffic control bid items in the contract.

139. Survey Project 1229-04-74, Item SPV.0060.1000.

A Description

This special provision describes modifying standard specs 105.6 and 650 to define the requirements for construction staking for this contract. Conform to sections 105.6 and 650 and as follows.

The department will not perform any construction staking for this contract. Obtain engineer's approval before performing all survey required to lay out and construct the work under this contract.

Replace standard spec 650.1 with the following:

This section describes the contractor-performed construction staking required under individual contract bid items to establish the horizontal and vertical position for all aspects of construction including, but not limited to:

- storm sewer
- subgrade
- base
- curb
- gutter
- curb and gutter
- curb ramps
- pipe culverts
- drainage structures
- structure layout
- bridges
- noise barriers
- all retaining wall layout
- pavement
- pavement markings (temporary and permanent)
- barriers (temporary and permanent)
- overhead signs
- ramp and local street lighting
- electrical installations
- supplemental control
- slope stakes
- ponds
- traffic signals
- ITS
- FTMS
- parking lots
- paths
- utilities
- conduit
- water main
- sanitary sewer
- traffic control items
- fencing

B (Vacant)

C Construction

Add the following to standard spec 650.3.1 (5):

Confirm with engineer before using global positioning methods to establish the following:

1. Structure layout horizontal or vertical locations.

2. Concrete pavement vertical locations.
3. Curb, gutter, and curb & gutter vertical locations.
4. Concrete barrier vertical locations.
5. Storm Sewer layout horizontal or vertical locations, including structure centers, offsets, access openings, rim and invert elevations.

Replace standard spec 650.3.1.1(2) with the following:

Maintain neat, orderly, and complete survey notes, drawings, and computations used in establishing the lines and grades. This includes:

- Raw data files
- Digital stakeout reports
- Control check reports
- Supplemental control files (along with method used to establish coordinates and elevation)
- Calibration report

Replace standard spec 650.3.3.1 with the following:

Under the Survey Project bid item, global positioning system (GPS) machine guidance for conventional subgrade staking on all or part of the work may be substituted. The engineer may require reverting to conventional subgrade staking methods for all or part of the work at any point during construction if the GPS machine guidance is producing unacceptable results.

Replace standard spec 650.3.3.3.4.1 with the following:

The department will provide the contractor staking packet as described in the Construction and Materials Manual (CMM) 7.10. At any time after the contract is awarded, the available survey and design information may be requested. The department will provide that information within 5 business days of receiving the contractor's request. The department incurs no additional liability beyond that specified in standard spec 105.6 or standard spec 650 by having provided this additional information.

Add the following to standard spec 650.3.3.3.6.2 as paragraph four:

Record all subgrade elevation checks and submit a hard copy to the engineer within 24 hours or as requested by the engineer.

D Measurement

Replace standard spec 650.4 with the following:

The department will measure Survey Project 1229-04-74 as a separate single each unit acceptably completed.

E Payment

Replace standard spec 650.5 with the following:

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1000	Survey Project 1229-04-74	EACH

Payment is full compensation for performing all survey work required to lay out and construct all work under this contract and for adjusting stakes to ensure compatibility with existing field conditions. The department will not make final payment for this item until the contractor submits all survey notes and computations used to establish the required lines and grades to the engineer within 24 hours of completing this work. Re-staking due to construction disturbance and knock-outs will be performed at no additional cost to the department.

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140. Remove Electrical Service Meter Breaker Pedestal Lighting, Item SPV.0060.1001.

A Description

This special provision describes removing an existing electrical service meter breaker pedestal, supports and any additional electrical equipment associated with the service including disconnect switches and overall enclosure, disconnecting all connected power wires, and disposing of the equipment appropriately.

B (Vacant).

C Construction

Coordinate for removal of the existing electrical service meter breaker pedestal with WE Energies.

Disconnect all connected power wires, remove the pedestal, include existing electrical service meter breaker, supports and disconnect switches if present and dispose of all materials properly away from the project area.

D Measurement

The department will measure Remove Electrical Service Meter Breaker Pedestal Lighting by the unit, acceptably removed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1009	Remove Electrical Service Meter Breaker Pedestal Lighting	Each

Payment is full compensation for coordination with WE Energies; for disconnection of wires; for removal of the pedestal and any additional material of the service; and for furnishing all labor, tools, equipment, transportation, and incidentals necessary to complete the work.

141. Removing Municipal Lighting Units, Item SPV.0060.1002.

A Description

This special provision describes the removing lighting units as the plans show, conforming to standard spec 204, and as follows.

B Materials

Removed poles, arms, and luminaires to be returned to City of Mequon. Contractor shall coordinate with the City Department of Public Works for removed pole, arms, and luminaires drop off location. Contact Mr. Rich Haczynski at 262-236-8147.

All other removed material shall become the property of the contractor and be disposed off the project site.

C Construction

Remove Municipal lighting units consisting of pole, arm, luminaire, lamp, wires, and breakaway device, and associated hardware and appurtenances.

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

D Measurement

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

E Payment

Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1002	Removing Municipal Lighting Units	Each

142. Municipal LED Luminaires, Item SPV.0060.1003.

A Description

The work under this item consists of installing Municipal LED luminaire and pole top fitter at the location specified in plans for City of Mequon, in accordance with plan detail, the applicable portion or section 651 and 659 of standard specifications, and as hereinafter provided.

B Materials

The Municipal LED Luminaires are proprietary to match City of Mequon street lighting requirement.

Luminaire: Gardco Form 10 LED – EL19L-96-560-NW-G3-AR2-3-UNV-FP1-SP1-BLA

Pole top fitter: PTF4-BLA

C Construction

Install Municipal LED Luminaires in accordance to the pertinent provisions of section 659 of the standard specifications and as the manufacturer directs. Mount unit to the square and true to the road. Individually fuse fixtures, with fuses located in the pole (5 Amp type FNQ). Provide a fuse for the fixture in the pole base immediately to the North of the fixtures. Provide engraved nameplates showing fuse location for each luminaire. Perform splices in the pole or conduit body with gel-filled wire nuts. Provide circuit identification in the base where the circuit is routed to the luminaire. Identification to include fixture number, and circuit number. Prior to being placed in service, clean the units. Provide #12 AWG wiring from the fixture to the base or conduit body in the main circuit path as part of this item.

D Measurement

The department will measure Municipal LED Luminaires as each individual unit acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1003	Municipal LED Luminaires	Each

Payment is full compensation for furnishing all materials; installing a luminaire unit; for install pole top fitter; for furnishing all documentation, labor, tools, equipment, and incidentals necessary to complete the contract work.

143. Concrete Bases Type 2 Modified, Item SPV.0060.1004.

A Description

The work under this item consists of furnishing and installing Concrete Base Type 2 Modified at locations specified in plans, in accordance to plan details, the applicable portions of standard spec 654, and as hereinafter provided. Concrete base design shall fall within the parameters shown in the plans and as enumerated below; and certified by vendor to support the required loads.

B (Vacant)

C Construction

The detail of construction with the exceptions of the bolt circle size shall be as defined in standard detail for Concrete Base Type 2.

Bolt circle of base to be 11.66-inch, matching the salvaged municipal pole. Contractor to confirm with the city DPW.

D Measurement

The department will measure Concrete Bases Type 2 Modified by each individual unit, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1004	Concrete Bases Type 2 Modified	Each

Payment is full compensation according to standard spec 654.5.

144. Salvage Municipal Pole, Item SPV.0060.1005.

A Description

This special provision describes salvaging an existing municipal pole with breakaway/transformer base according to standard spec 655, 656, and 657, the Wisconsin Electrical Code, as shown on the plans and as hereinafter provided.

B Materials

Materials included are:

- Municipal Pole and Luminaire
- Breakaway/Transformer Base.

C Construction

Remove pole at the location shown in the plans, or as directed by the engineer. Inspect the pole prior to removing from the existing base. Inform the engineer of any items of concern or potential problems that may interfere with the reuse of the pole or transformer base. Store the pole and base in a safe and secure location until reinstalled on the project. Maintain all materials in a condition suitable for reutilization. Replace all items damaged during construction operations.

Remove existing High Intensity Discharge Luminaires to be returned to the City of Mequon. Contractor shall coordinate with the City of Mequon for drop off location. Contact Mr. Rich Haczynski at 262-236-8147.

Electrical work under this item shall be completed by a journeyman electrician or be completed under the supervision of a journeyman electrician. Legal status or standing as a journeyman electrician shall be certified or otherwise documented to the engineer before any electrical work may begin.

D Measurement

The department will measure Salvage Municipal Poles by each individual unit, acceptably removed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1005	Salvage Municipal Pole	Each

Payment is full compensation for removal and storage of the Municipal Pole and Breakaway/Transformer Base; disconnecting all wiring connections; removing all conduit connections; for any necessary restoration, including backfill, topsoil, and seeding.

145. Install Salvaged Municipal Pole, Item SPV.0060.1006.

A Description

This special provision describes installing a salvaged Municipal Pole with Breakaway/Transformer base and all necessary mounting hardware, according to standard spec 655, 656, and 657, the Wisconsin Electrical Code, as shown on the plans and as hereinafter provided.

B Materials

Materials included are:

- Salvaged Municipal Pole.
- Salvaged Breakaway/Transformer Base.
- Installation Hardware

C Construction

Transport the salvaged pole and base from its stored location to the project site. Inspect the salvaged pole prior to installation. Install the salvaged pole and base as shown in the plans.

Electrical work under this item shall be completed by a journeyman electrician or be completed under the supervision of a journeyman electrician. Legal status or standing as a journeyman electrician shall be certified or otherwise documented to the engineer before any electrical work may begin.

D Measurement

The department will measure Install Salvaged Municipal Poles by each individual unit, acceptably installed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1006	Install Salvaged Municipal Pole	Each

Payment is full compensation for transportation of the salvaged Municipal Pole and Breakaway/Transformer Base to the project location; installation of the Municipal Pole and Breakaway/Transformer Base; furnishing all necessary hardware; making all wiring connections and conduit connections; and for any necessary restoration, including backfill, topsoil, and seeding.

146. Maintenance of Lighting Systems, Item SPV.0060.1007

A Description

This special provision describes maintaining existing and proposed lighting system beginning on the date that the contractor's activities, including electrical, begin at the job site. Properly operate and maintain all

existing and proposed lighting systems which are part of, or which may be affected by, the work until final acceptance or as otherwise determined by the engineer.

Before performing any excavation, removal, or installation work, including electrical, for the project, initiate a request for maintenance transfer and preconstruction inspection, as specified in this special provision. Conduct the transfer and inspection in the engineer's presence and a representative of the party or parties responsible for maintenance of any lighting systems which may be affected by the work. Request the maintenance preconstruction inspection at least seven calendar days before the desired inspection date.

Existing lighting systems, when shown on the plans, are intended only to indicate the general equipment installation of the systems involved, possibly not exactly representing the field conditions. A site visit will confirm the exact condition of the electrical equipment and systems to be maintained.

Issues found during contractor assessment can be discussed and addressed by contacting the SE Region Lighting Engineer (Eric Perea) before transferring maintenance responsibility to the contractor.

Maintenance of the lighting system includes lighting control cabinet(s):

HL-45-RH.

The following lighting control cabinet(s) will be used long enough to allow the installation of temporary lighting:

HL-44-RH

B (Vacant)

C Construction

C.1 Existing Lighting Systems

Existing lighting systems are defined as any lighting system or part of a lighting system in service before this contract. The contract drawings indicate the general extent of any existing lighting. Understand the effort required for compliance with these specifications; Clear and replace any knockdowns or damage caused to the existing lighting system, regardless of who causes the damage. Maintain existing lighting system as follows:

Partial Maintenance: Only maintain the affected circuits if the number of circuits affected by the contract is equal to or less than 40% of the total number of circuits in a given controller and the controller is not part of the contract work unless otherwise indicated. Obtain engineer approval to isolate the affected circuits by in-line waterproof fuse holders as specified elsewhere

Full Maintenance: Maintain the entire controller and all associated circuits if the number of circuits affected by the contract is greater than 40% of the total number of circuits in a given controller, or if the controller is modified in any way under the contract work.

C.2 Proposed Lighting Systems

Proposed lighting systems are any temporary or final lighting systems or part of a lighting system to be constructed under this contract.

Maintain all items installed under this contract, including all equipment failures or malfunctions as well as equipment damage by the motoring public, contractor operations, or other sources.

C.3 Maintenance Operations

Maintain lighting units (including sign lighting), cable runs, and lighting controls. If a pole is knocked down or sign light damage is caused by normal vehicular traffic, promptly clear the lighting unit and circuit discontinuity, and restore the system to service. Reinstall the lighting unit (if salvageable), or install a new one.

Provide weekly night-time patrol of the lighting system, with patrol reports filed on standard forms as designated by the engineer. Send a copy to the region lighting coordinator.

Correct the deficiencies within a time frame acceptable to the engineer. Remaining deficiencies may require corrective action on specific lighting system equipment as described in the chart or based on material availability.

Incident or Problem	Service Response Time	Service Restoration Time	Permanent Repair Time
Control cabinet out	12 hours	24 hours	7 Calendar days
Hanging mast arm	**Emergency** - As Soon As Possible	na	7 Calendar days
Motorist caused damage or leaning light pole 10 degrees or more	**Emergency** - As Soon As Possible	7 Calendar days	14 Calendar days
Circuit out – Needs to reset breaker	12 hours	12 hours	na
Circuit out – Cable trouble	12 hours	7 Calendar days	21 Calendar days
Outage of 3 or more successive lights	12 hours	7 Calendar days	na
Outage of 75% of lights on one tower	12 hours	7 Calendar days	na
Outage of light nearest RR crossing approach, Islands and gores	12 hours	7 Calendar days	na
Outage (single or multiple non successive lights) found on night outage survey	na	na	7 Calendar days

C.4 Lighting

1. **Serve Response Time:** The amount of time from the initial contractor notification to the patrolman physically arriving.
2. **Service Restoration Time**: The amount of time from the initial contractor notification to a fully operational system again. (In cases of motorist-caused damage, the undamaged portions of the system are operational.)
3. **Permanent Repair Time**: The amount of time from initial contractor notification until permanent repairs are made unless the contractor was required to make temporary repairs to meet the service restoration requirement. Temporary repairs that do not meet the service restoration requirements require engineer's approval.

C.5 Operation of Lighting

Maintain operational lighting every night, from dusk until dawn. Do not operate duplicate lighting systems (such as temporary lighting and proposed new lighting) simultaneously. Do not keep lighting systems in

operation during long daytime periods. Ensure that the lighting system is fully operational and approved by the engineer before submitting a pay request.

D Measurement

The department will measure Maintenance of Lighting Systems as an individual unit, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1007	Maintenance of Lighting Systems	EACH

Payment is full compensation for Maintenance of Lighting Systems, both existing and proposed, weekly night-time patrol of the lighting system, mobilization, and filed patrol reports.

The contractor will be reimbursed for replaced equipment, materials only, if the invoice paid for the individual piece of equipment is greater than $500.

Non-compliance with designated response, restoration, and permanent repair times will result in liquidated damages of $500 per day per occurrence. In addition, the department reserves the right to assign any work not completed within this timeframe to the State Electrical Engineering and Electronics Unit. Reimburse all costs associated to repair this uncompleted work within one month after the incident or additional liquidated damages of $500 per month per occurrence will be assessed. Unpaid bills will be deducted from the cost of the contract. Repeated non-response or a negligent maintenance shall result in the State's Electrical Engineering and Electronics Unit being directed to correct all deficiencies and the resulting costs deducted from all monies owed the contractor.

Not understanding the effort required for compliance with these specifications will not be justification for extra payment or reduced responsibilities. No payment will be considered for damage or repairs due to contractor operations.

Not ensuring that the lighting system is fully operational and approved by the engineer before submitting a pay request will be grounds for denying the pay request.

147. Lighting System Integrator, Item SPV.0060.1008.

A Description

These special provisions describe coordinating lighting with various parties; record keeping, and documentation. Where the Department is responsible for freeway lighting operation, maintenance, or utility locates on existing systems or systems overlapping project boundaries, the contractor's freeway lighting integrator will serve as the contractor's liaison to the Department's electrical operations unit.

B Personnel Qualifications

Assign personnel experienced in underground utility construction and Department lighting specifications and practices.

C Construction

At any one time during the project, the contractor shall assign one individual person as the freeway lighting integrator.

The freeway lighting integrator shall:

1. Familiarize himself with the location and nature of existing lighting circuits. This familiarity shall include the extent of any lighting system that overlaps project limits.
2. Maintain a file of applicable permits or licenses issued to the contractor, and convey copies to the Engineer.
3. Keep with him at all times a contact list of affected lighting personnel.
4. Maintain a record of tagouts and the clearance of tagouts.
5. Interface with Department electrical personnel to determine how contract limits might affect maintenance or operation of existing systems.
6. Maintain ongoing contact with the Department's Diggers' Hotline Coordinator to ensure that each of the two persons knows that all requested utility locates are marked in the field by the appropriate party. The intent here is to assure coordination. This special provision does not transfer additional utility locating responsibilities to the contractor, beyond those responsibilities already assigned to him by other provisions of the contract.
7. Inform the Department of any lighting outages, including outside the project limits where a lighting system crosses the project boundary.
8. Maintain in any format real-time records of existing, removed and new lighting facilities. Include utility service extensions. Additional required records will include temporary connections and their ultimate removal.
9. Maintain records of tests, including: "meg" tests, amperage draw per circuit leg, voltage reading at the disconnect, and voltage reading at the furthest pole per circuit leg. Convey these records at time of acceptance or partial acceptance.
10. At the time of acceptance or partial acceptance, convey as-built drawings in both the following formats: plan redlines and .dgn electronic. Include utility service extensions.
11. Secure copies of operators manuals, tear sheets, etc. as may be provided by manufacturers of some lighting materials, and convey a minimum of three sets to the Department.
12. Work with the Engineer to notify Department electrical personnel of acceptance or partial acceptance.
13. Perform related duties as may be needed to ensure continuity of freeway lighting during construction, and orderly transfer upon completion.
14. Contractor must use GPS to provide coordinates of each light pole and control cabinet. The data must be entered into a Microsoft Excel 2007 spreadsheet along with other required fields as specified by WisDOT.

D Measurement

The Department will measure Lighting System Integrator as one complete unit item of work per each pay item for all required coordination, record-keeping, and documentation.

E Payment

The department will pay for the measured quantity at the contract unitprice under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.1008	Lighting System Integrator	EACH

Payment will be full compensation for personnel costs; and for all labor, tools, equipment and incidentals necessary to complete the contract work.

148. Removing Electrical Service Meter Breaker Pedestal, Item SPV.0060.2000.

A Description

This special provision describes removing an existing electrical service meter breaker pedestal, disconnecting all connected power wires, and disposing of the equipment appropriately.

B Materials

Existing electrical service meter breaker pedestal.

C Construction

Coordinate for removal of the existing electrical service meter breaker pedestal with WE Energies.

Disconnect all connected power wires, remove the pedestal and dispose of all materials properly away from the project area.

D Measurement

The department will measure Removing Electrical Service Meter Breaker Pedestal by the unit, acceptably removed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2000	Removing Electrical Service Meter Breaker Pedestal	Each

Payment is full compensation for coordination with WE Energies; for disconnection of wires; for removal and disposal of the pedestal; and for furnishing all labor, tools, equipment, transportation, and incidentals necessary to complete the work.

149. Removing Controller Cabinet, Item SPV.0060.2001.

A Description

This special provision describes removing an existing controller cabinet.

B (Vacant)

C Construction

Remove controller cabinets at the locations shown on the plans, or as directed by the engineer. Salvage and store the cabinets and all contents for pick up by the department.

Do not remove the existing ITS control cabinets, or any other associated equipment until necessary, or as directed by the engineer. Carefully remove the existing cabinets from the concrete bases, together with all components in such a manner as to safeguard all parts and wiring from damage or loss. Salvage and store the cabinet and contents for pick up by the department.

Prior to removing the existing ITS control cabinets, remove all cables being terminated in the cabinet. Cut existing cables flush with cabinet base and cap existing conduits. Dispose of the cables properly away from the project area.

D Measurement

The department will measure Removing Controller Cabinet by the unit, acceptably removed, salvaged, and stored.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2001	Removing Controller Cabinet	Each

Payment is full compensation for removal and storage of the controller cabinet; disconnecting all associated wires and cables; for capping existing conduits, and for furnishing all labor, tools, equipment, transportation, and incidentals necessary to complete the work.

150. Removing Controller Cabinet Base, Item SPV.0060.2002.

A Description

This special provision describes removing an existing controller cabinet concrete base.

B Materials

Existing controller cabinet base, including concrete masonry, ground rods, masonry anchors, and restoration materials such as topsoil, seeding, mulch, and fertilizer in accordance to the pertinent provisions of sections 201, 625, 627, 629, 630, 636, and 640 of the standard specifications.

C Construction

Remove and dispose of the concrete foundation and all other pertinent materials, and restore the disturbed area by placing 4-inches of topsoil, and fertilize, seed, and mulch all disturbed areas in accordance to the pertinent requirements of the standard specifications.

D Measurement

The department will measure Removing Controller Cabinet Base by the unit, removed from the ground, removed from the project site, and the disturbed area restored in accordance to the contract.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT

Payment is full compensation for removing and disposing of a concrete controller cabinet base, including masonry anchors, ground rods, and concrete masonry; for topsoil, fertilizer, seed and mulch; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

151. Remove Pole, Item SPV.0060.2008.

A Description

This special provision describes removing an existing Type 2, 3, 4, 5, 6, or 7 pole.

B Materials

Existing poles, including antennae, conduit and cabling, and any other equipment mounted to the poles.

C Construction

Disconnect all cables and wiring that are mounted on or in the poles, and carefully remove the pole from the concrete footing. Salvage and store all hardware for pick up by the department. Dispose of the pole and any conduit and cabling appropriately away from the project area.

D Measurement

The department will measure Remove Pole as a unit, removed from the concrete base, salvaged and stored, including attached hardware, in accordance to the contract.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2008	Remove Pole	Each

Payment is full compensation for disconnecting any necessary wiring; removing the poles and equipment mounted on the poles; storing the poles and any equipment attached to them; and for furnishing all labor, tools, equipment, transportation, and any other incidentals necessary to complete the contract work.

152. Ground Rod, Item SPV.0060.2013.

A Description

This special provision describes installing a ground rod and ground wire.

B Materials

Ground rod shall be copper clad steel with cladding 13 mils thick. The minimum diameter is 5/8-inch and the minimum length is eight feet. Ground wire shall be AWG # 6 bare, solid copper.

C Construction

Use exothermic welding to connect the ground wire to the rod. Install the rod vertically, or as close to vertical as conditions permit. Select locations with moist soil, if available. Place the rod at least six feet from all other ground rods.

D Measurement

The department will measure Ground Rod by the unit, acceptably installed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.20	Ground Rod	Each

Payment is full compensation for installation of the ground rod and ground wire; welding and connections at both ends of the ground wire; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

153. Refocus Vehicle Detector Assembly, Item SPV.0060.2015.

A Description

This special provision describes refocusing an existing microwave detector, or detectors, on a pole or other structure, for operation with a new lane configuration.

B Materials

Materials include Electronic Integrated Systems, Inc. (EIS) Remote Traffic Microwave Sensors (RTMS) and the respective poles they have been mounted on.

C Construction

Coordinate all planned down-time of vehicle detector assemblies with the STOC at (414) 227-2166. Notify the STOC an amount of time ahead of planned down-time equal to the planned down-time. Examples would be that a 4-hour temporary down-time of the system would require notification 4-hours ahead of time while an 8-hour planned down-time would require 8-hours of advance notification.

Refocus and recalibrate the detector each time the adjacent traffic pattern is changed due to a change in traffic control or construction staging.

Verify to the satisfaction of the engineer that the existing detector assembly is working properly. Inspect the vehicle detector assembly for damage.

D Measurement

The department will measure Refocus Vehicle Detector Assembly by the unit, acceptably refocused and operational.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2015	Refocus Vehicle Detector Assembly	EACH

Payment is full compensation for making the detector fully operational with a new lane configuration.

154. Install Ethernet Radio, Item SPV.0060.2016.

A Description

This special provision describes installing a state-furnished, or salvaged, 5.8 GHz Ethernet bridge access point or subscriber unit at a new or existing cabinet or new or existing pole.

B Materials

Materials will include state-furnished materials and contractor furnished materials.

State-furnished or salvaged, materials include the following:

- One 5.8 GHz Ethernet bridge with integral antenna.
- One 5.8 GHz Ethernet bridge power converter.
- One 5.8 GHz Ethernet bridge mounting bracket.

Contractor-furnished materials include the following:

- Mounting hardware.
- Outdoor rated Category 6 communications cable.
- Inline network cable surge suppressor.

C Construction

Bond the surge suppressor to the cabinet grounding system.

Install the 5.8 GHz Ethernet Bridge in a point-to-point or point-to-multipoint configuration as shown on the plans and as directed by the engineer.

Use the manufacturer's set-up software to configure the Ethernet radio for its intended use. Use the signal strength indicator on the radio to find the optimum position. Also perform a frequency analysis to determine the optimal hop pattern of the radios and test the continuity of the link by polling the radios using the software provided. The position of the radio and the hop pattern shall be adjusted until the polls show at least 200 consecutive polling intervals have been successfully transmitted and received. Demonstrate to the engineer that the hop pattern selected corresponds to the optimal noise free frequencies identified in the frequency analysis. Deliver 3 copies of the final test results for signal strength, frequency analysis, and test polling.

D Measurement

The department will measure Install Ethernet Radio as each individual unit, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2016	Install Ethernet Radio	Each

Payment is full compensation for installing, setting up, configuring, and testing the 5.8 GHz Ethernet bridge radio, surge suppressor, cables, and connections; and required transportation.

155. Signal Assembly Ramp Control Sidemount, Item SPV.0060.2017.

A Description

This special provision describes providing and installing sidemount traffic signal assemblies for use with ramp meters, including the pedestal base, traffic signal standard, traffic signal heads, traffic signal mounting brackets, sign mounting brackets, and wiring within the assembly.

B Materials

Provide pedestal bases that meet the requirements of Section 657.2.6 of the Standard Specifications.

Provide traffic signal standards that meet the requirements of Section 657.2.5 of the Standard Specifications.

Provide one three-section 12-inch face traffic signal head and one two-section 12-inch face traffic signal head that meet the requirements of Section 658 of the Standard Specifications.

Provide traffic signal mounting hardware that meets the requirements of Section 658 of the Standard Specifications.

Provide sign mounting brackets that meet the requirements of Section 637.2.4 of the Standard Specifications.

Provide wiring within the assembly and from the signal heads to the pedestal base that meets the requirements of Section 655.2.2 of the Standard Specifications.

C Construction

Perform work conforming to Sections 637, 657, and 658 of the Standard Specifications and the WSEC, and as the plans show.

Ensure that the positioning, mounting height, and lateral placement of signal heads are according to the MUTCD. The contractor may be required to revisit locations to re-adjust the signal heads once the engineer observes the metering operation of the ramp.

For traffic signal cable that extends from the signal base to the terminal strips in the signal heads, provide the number of conductors as the plans show. Match the color of the conductor to the lens color.

Install conductors in continuous lengths without splices from terminal to terminal. Splice only at hand holes at the bases of the standards or poles. Do not splice in underground pull boxes or conduit.

Group and identify sets of conductors in signal cables, 3 each per signal phase, whether insulated with red, yellow, green, or other colors, at each pertinent termination. Use conductors colored to match lens colors first. The engineer shall approve the method of identification. Furnish 2 as-built cable layout drawings with labeling to the engineer upon completion of the work. Place one of those copies in the cabinet.

Connect the white 14 AWG wires to a 10 AWG current carrying neutral. Make the connection with a wire-nut. Extend the 10 AWG wire from the current carrying neutral grounding strip in the ramp meter processor assembly cabinet, being installed from base to base to the far end of each signal conduit run.

Furnish the 10 AWG USE XLP current carrying grounded conductor in white colored insulation.

Furnish the 10 AWG USE XLP equipment-grounding wire in green colored insulation.

Furnish equipment and appliances necessary to test the complete installation of the ramp meter control signal assembly, including electrical conductors.

D Measurement

The department will measure Signal Assembly Ramp Control Sidemount as each individual assembly acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2017	Signal Assembly Ramp Control Sidemount	Each

Payment is full compensation for providing and installing traffic signal standards, pedestal bases, signal heads, signal mounting brackets, cabling within the assembly, and the sign support system; for providing electrical connections and grounding; and for testing.

156. Signal Assembly Advance Flasher Type 1, Item SPV.0060.2018.

A Description

This special provision describes providing and installing type 1 advance flasher traffic signal assemblies for use with ramp meters, including the pedestal base, traffic signal standard, traffic signal heads, traffic signal mounting brackets, sign mounting brackets, and wiring within the assembly.

B Materials

Provide pedestal bases that meet the requirements of Section 657.2.6 of the Standard Specifications.

Provide traffic signal standards that meet the requirements of Section 657.2.5 of the Standard Specifications.

Provide two single-section 12-inch yellow face traffic signal heads meet the requirements of Section 658 of the Standard Specifications.

Provide traffic signal mounting hardware that meets the requirements of Section 658 of the Standard Specifications.

Provide sign mounting brackets that meet the requirements of Section 637.2.4 of the Standard Specifications.

Provide wiring within the assembly and from the signal heads to the pedestal base that meets the requirements of Section 655.2.2 of the Standard Specifications.

C Construction

Perform work conforming to Sections 637, 657, and 658 of the Standard Specifications and the WSEC, and as the plans show.

Ensure that the positioning, mounting height, and lateral placement of signal heads are according to the MUTCD. The contractor may be required to revisit locations to re-adjust the signal heads once the engineer observes the metering operation of the ramp.

For traffic signal cable that extends from the signal base to the terminal strips in the signal heads, provide the number of conductors as the plans show. Match the color of the conductor to the lens color.

Install conductors in continuous lengths without splices from terminal to terminal. Splice only at hand holes at the bases of the standards or poles. Do not splice in underground pull boxes or conduit.

Group and identify sets of conductors in signal cables, 3 each per signal phase, whether insulated with red, yellow, green, or other colors, at each pertinent termination. Use conductors colored to match lens colors first. The engineer shall approve the method of identification. Furnish 2 as-built cable layout drawings with labeling to the engineer upon completion of the work. Place one of those copies in the cabinet.

Connect the white 14 AWG wires to a 10 AWG current carrying neutral. Make the connection with a wire-nut. Extend the 10 AWG wire from the current carrying neutral grounding strip in the ramp meter processor assembly cabinet, being installed from base to base to the far end of each signal conduit run.

Furnish the 10 AWG USE XLP current carrying grounded conductor in white colored insulation.

Furnish the 10 AWG USE XLP equipment-grounding wire in green colored insulation.

Furnish equipment and appliances necessary to test the complete installation of the ramp meter control signal assembly, including electrical conductors.

D Measurement

The department will measure Signal Assembly Advance Flasher Type 1 as each individual assembly acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2018	Signal Assembly Advance Flasher Type 1	Each

Payment is full compensation for providing and installing traffic signal standards, pedestal bases, signal heads, signal mounting brackets, cabling within the assembly, and the sign support system; for providing electrical connections and grounding; and for testing.

157. Install Salvaged Pole, Item SPV.0060.2019.

A Description

This special provision describes installing a previously removed and salvaged pole and transformer base on a new concrete base, paid for separately.

B Materials

Materials include salvaged pole and transformer base, and new hardware (nuts and washers) required to mount the pole and transformer base to a new concrete base.

C Construction

Perform work conforming to Sections 657of the Standard Specifications and the WSEC, and as the plans show.

D Measurement

The department will measure Install Salvaged Pole as each individual assembly acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2019	Install Salvaged Pole	Each

Payment is full compensation for installing a salvaged pole and transformer base on a new concrete base, for providing new mounting hardware, and for all labor, transportation, and incidentals necessary to complete the work.

158. Install Terminal Server, Item SPV.0060.2020.

A Description

This special provision describes installing a serial to Ethernet terminal server, and providing all necessary associated wiring.

B Materials

The department will furnish the terminal server. Provide all necessary cables between the Ethernet switch, terminal server, and serial device(s).

C Construction

Install the terminal server in a new or existing field cabinet. Connect it to devices as shown on the plans, or as directed by the engineer.

D Measurement

The department will measure Install Terminal Server by the unit, installed in accordance with the contract, tested and accepted.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.2020	Install Terminal Server	Each

Payment is full compensation for installation of the terminal server; furnishing all necessary incidental hardware; and making all necessary connections.

159. Install Poles Type 9, Item SPV.0060.3001; Install Poles Type 10, Item SPV.0060.3002; Install Poles Type 9-Special, Item SPV.0060.3003; Install Poles Type 10-Special, Item SPV.0060.3004; Install Monotube Arms 15-FT, Item SPV.0060.3007; Install Monotube Arms 20-FT, Item SPV.0060.3008; Install Monotube Arms 30-FT, Item SPV.0060.3010; Install Monotube Arms 35-FT-Special, Item SPV.0060.3012; Install Monotube Arms 40-FT-Special, Item SPV.0060.3014; Install Luminaire Arms Steel 15-FT, Item SPV.0060.3019.

A Description

This special provision describes installing state furnished materials conforming to standard spec 657, details shown in the plans, and as modified in this special provision.

B Materials

The department will furnish the monotube poles, monotube arms and luminaire arms.

Provide all other needed materials in conformance with sections 651.2, 652.2, 653.2, 654.2, 655.2, 656.2, 657.2, 658.2 and 659.2 of the standard specifications.

C Construction

Perform work in accordance with sections 651.3, 652.3, 653.3, 654.3, 655.3, 656.3, 657.3, 658.3 and 659.3 of the standard specifications except as specified below.

D Measurement

The department will measure Install [Equipment] at the contract unit price acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.3001	Install Poles Type 9	EACH
SPV.0060.3002	Install Poles Type 10	EACH
SPV.0060.3003	Install Poles Type 9-Special	EACH
SPV.0060.3004	Install Poles Type 10-Special	EACH
SPV.0060.3007	Install Monotube Arms 15-FT	EACH

SPV.0060.3008	Install Monotube Arms 20-FT	EACH
SPV.0060.3010	Install Monotube Arms 30-FT	EACH
SPV.0060.3012	Install Monotube Arms 35-FT-Special	EACH
SPV.0060.3014	Install Monotube Arms 40-FT-Special	EACH
SPV.0060.3019	Install Luminaire Arms Steel 15-FT	EACH

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

160. Traffic Signal Controller Programming, Item SPV.0060.3022.

A Description

This special provision describes the required traffic signal controller programming necessary to update the intersection phasing and timing. Specific timing plans will be provided by Ozaukee County.

B (Vacant)

C Construction

Input traffic signal timings into the new traffic signal controller as directed by Ozaukee County to allow the traffic signal to operate according to the sequence of operations.

All Ozaukee County and/or its representatives to review the operation of the controller prior to installation at the job site. Provide guidance as needed on special programming features based on the sequence of operations to maintain proper operation.

D Measurement

The department will measure Traffic Signal Controller Programming by each individual controller, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.3022	Traffic Signal Controller Programming	EACH

Payment is full compensation for controller programming and timing modifications required to accommodate fully functional traffic signal operation as shown in the sequence of operations plan.

161. EVP Cabinet Equipment, Item SPV.0060.3023.

A Description

This special provision describes installing state furnished EVP cabinet equipment in the control cabinet as shown on the plans and as hereinafter provided.

B (Vacant)

C Construction

Install state furnished EVP cabinet equipment for traffic signals per manufacturer’s recommendations.

D Measurement

The department will measure EVP Cabinet Equipment as each unit, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.3023	EVP Cabinet Equipment	EACH

Payment is full compensation for installing the EVP cabinet equipment in the control cabinet and any additional wiring harnesses required for auxiliary heads.

162. Trnspt & Install State Furn Traffic Signal Cabinet IH 43 NB Off Ramp/N Katherine Dr & CTH W, Item SPV.0060.3051; IH 43 SB Off Ramp/Port Washington Ln & CTH W, Item SPV.0060.3052.

A Description

This special provision describes the transporting and installing of department furnished materials for traffic signals as the plans show and as follows.

B Materials

Use materials furnished by the department including: the traffic signal controller and the traffic signal cabinet.

Pick up the department furnished materials at the department's Electrical Shop located at 935 South 60th Street, West Allis. Notify the department's Electrical Field Unit at (414) 266-1170 and make arrangements for picking up the department furnished materials five (5) working days prior to picking the materials up.

Provide all other needed materials in conformance with 651.2, 652.2, 653.2, 654.2, 655.2, 656.2, 657.2, 658.2 and 659.2 of the standard specs.

C Construction

Perform work in accordance with 651.3, 652.3, 653.3, 654.3, 655.3, 656.3, 657.3, 658.3 and 659.3 of the standard specs except as specified below.

Request a signal inspection of the completed signal installation to the project engineer at least five (5) working days prior to the time of the requested inspection. The departments' Region Electrical personnel will perform the inspection.

D Measurement

The department will measure Trnspt & Install State Furn Traffic Signal Cabinet [Location] as each individual unit acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.3051	Trnspt & Install State Furn Traffic Signal Cabinet IH 43 NB Off Ramp/N Katherine Dr & CTH W	EACH
SPV.0060.3052	Trnspt & Install State Furn Traffic Signal Cabinet IH 43 SB Off Ramp/Port Washington Ln & CTH W	EACH

Payment is full compensation for transporting and installing the traffic signal controller and the traffic signal cabinet; for furnishing and installing all other items necessary (such as, wire nuts, splice kits and/or connectors, tape, insulating varnish, ground lug fasteners, etc.) to make the proposed system complete from the source of supply to the most remote unit and for clean-up and waste disposal.

163. Trnspt Traffic Signals & Inter Lighting Materials IH 43 NB Off Ramp/N Katherine Dr & CTH W, Item SPV.0060.3053; IH 43 SB Off Ramp/Port Washington Ln & CTH W, Item SPV.0060.3054.

A Description

This special provision describes the transporting of department furnished monotube poles, monotube arms, and monotube luminaire arms.

B Materials

Transport materials furnished by the department including: Monotube poles, monotube arms and monotube luminaire arms (to be installed on monotube assemblies).

Pick up the department furnished materials at the department's Electrical Shop located at 935 South 60th Street, West Allis. Notify the department's Electrical Field Unit at (414) 266-1170 and make arrangements for picking up the department furnished materials five (5) working days prior to picking the materials up.

Provide all other needed materials in conformance with sections 651.2, 652.2, 653.2, 654.2, 655.2, 656.2, 657.2, 658.2 and 659.2 of the standard specifications.

C Construction

Perform work in accordance with sections 651.3, 652.3, 653.3, 654.3, 655.3, 656.3, 657.3, 658.3 and 659.3 of the standard specifications.

D Measurement

The department will measure Trnspt Traffic Signals & Inter Lighting Materials [Location] as each individual unit, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.3053	Trnspt Traffic Signals & Inter Lighting Materials IH 43 NB Off Ramp/N Katherine Dr & CTH W	EACH
SPV.0060.3054	Trnspt Traffic Signals & Inter Lighting Materials IH 43 SB Off Ramp/Port Washington Ln & CTH W	EACH

Payment is full compensation for transporting the monotube poles, monotube arms and monotube luminaire arms (to be installed on monotubes). Installation of these materials is included under a separate pay item.

164. Trnsprt and Install S-F FO Cable Pigtail 8-CT IH 43 NB Off Ramp/N Katherine Dr & CTH W, Item SPV.0060.3055; IH 43 SB Off Ramp/Port Washington Ln & CTH W; Item SPV.0060.3056.

A Description

This special provision describes the transporting and installing of fiber optic cable pigtail 8-ct in traffic signal cabinets.

B Materials

The department will furnish the pre-terminated fiber optic patch panel. The material will be provided with the traffic signal cabinet. The patch panel will have a pre-terminated fiber optic cable pigtail. Provide all patch panel attachment hardware.

C Construction

Install the patch panel on the side of the traffic signal cabinet opposite the electrical service at a location as approved by the engineer. Install the pre-terminated fiber optic cable in conduit from the patch panel to the communication vault as specified in standard spec 678.3.1. Fiber optic cable ends shall be covered securely to protect open ends during installation in raceways. Leave the remainder of the fiber optic cable coiled in the communication vault.

D Measurement

The department will measure Trnsprt and Install S-F FO Cable Pigtail 8-CT [Location] as each individual unit, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT

SPV.0060.3055	Trnsprt and Install S-F FO Cable Pigtail 8-CT IH 43 NB Off Ramp/N Katherine Dr & CTH W	EACH
SPV.0060.3056	Trnsprt and Install S-F FO Cable Pigtail 8-CT IH 43 SB Off Ramp/Port Washington Ln & CTH W	EACH

Payment is full compensation for transporting and installing pre-terminated patch panels; furnishing and installing attachment hardware; and cleaning up and disposing of waste.

165. Transport and Install State Furnished Radar Detection System, IH 43 NB Off Ramp/N Katherine Dr & CTH W, Item SPV.0060.3057; IH 43 SB Off Ramp/Port Washington Ln & CTH W; Item SPV.0060.3058.

A Description

This special provision describes the transporting and installing of department furnished Radar Detection System on monotube poles or arms.

B Materials

Pick up the department furnished Radar System at the department's electrical shop located at 935 South 60th Street, West Allis. Notify the department's electrical field unit (EFU) at (414) 266-1170 to make arrangements for picking up the department furnished materials at least five (5) working days prior to material pick-up.

C Construction

Install the department furnished pole/arm mounting brackets, extension arms (if required), and radar units per manufacturer recommendations in the locations determined by the department.

Install the power and communication cable to run continuously (without splices) from the traffic signal cabinet to the pole handhole plus an additional 16-feet in each pull box and an extra 10-feet in the pole handhole. Install the detector unit cable whip from the detector unit to the pole handhole. Splice the detector unit cable whip to the power and communication cable in the pole handhole using the provided junction box.

Mark each end of the lead in the traffic signal cabinet and each cable in the pole handhole to indicate the equipment label (i.e. RA1, RA2, etc.) on the plans. For a cabinet that is not operating the signal, the contractor will terminate the ends. If the cabinet is operating the signal, the cabinet wiring will be done by the department.

Notify department's Electrical Shop at (414) 266-1170 upon completion of the installation and aiming of the radar units.

The department will provide the vendor's contact information. Coordinate directly with the department's radar detection system vendor to arrange for the vendor to program the radar detection system on site. Notify the department and vendor at least five working days prior to the date of programming. Assist the department and vendor with fine adjusting of the radar units during the radar system programming, if necessary.

D Measurement

The department will measure Transport and Install State Furnished Radar Detection System [Location] as each individual unit, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.3057	Transport and Install State Furnished Radar Detection System IH 43 NB Off Ramp/N Katherine Dr & CTH W	EACH
SPV.0060.3058	Transport and Install State Furnished Radar Detection System IH 43 SB Off Ramp/Port Washington Ln & CTH W	EACH

Payment is full compensation for transporting and installing the radar detection system, cable, mounting hardware, and radar units; assisting the department and vendor during the radar system programming; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the contract work.

166. Trnspt & Install State Furn EVP Heads With Confirmation Lights IH 43 NB Off Ramp/N Katherine Dr & CTH W, Item SPV.0060.3059; IH 43 SB Off Ramp/Port Washington Ln & CTH W, Item SPV.0060.3060; CTH W & Donges Bay Rd, Item SPV.0060.3061.

A Description

This special provision describes the transporting and installing of department furnished Emergency Vehicle Preemption (EVP) Detector Heads With Confirmation Lights and mounting brackets at IH 43 NB Off Ramp/N Katherine Dr & CTH W, IH 43 SB Off Ramp/Port Washington Ln & CTH W, and CTH W & Donges Bay Rd.

B Materials

Pick up the department furnished materials at the department's Electrical Shop located at 935 South 60th Street, West Allis. Notify the department's Electrical Field Unit at (414) 266-1170 and make arrangements for picking up the department furnished materials five working days prior to picking the materials up.

C Construction

Install the EVP detector heads and confirmation lights as shown on the plans. The department (IH 43 NB Off Ramp/N Katherine Dr & CTH W and IH 43 SB Off Ramp/Port Washington Ln & CTH W) and Ozaukee County Highway Department (CTH W & Donges Bay Rd) will determine the exact location to ensure that the installation does not create a sight obstruction. Mount the EVP detector heads and confirmation lights, and wire them per manufacturer instructions. For a cabinet that is not operating the signal, the contractor will terminate the ends and install the discriminators and card rack in the cabinet. If the cabinet is operating the signal, the cabinet wiring will be done by the department (IH 43 NB Off Ramp/N Katherine Dr & CTH W and IH 43 SB Off Ramp/Port Washington Ln & CTH W) or Ozaukee County Highway Department (CTH W & Donges Bay Rd).

Notify the department's Electrical shop at (414) 266-1170 (IH 43 NB Off Ramp/N Katherine Dr & CTH W and IH 43 SB Off Ramp/Port Washington Ln & CTH W) and Ozaukee County Highway Department at (262) 284-8331 (CTH W & Donges Bay Rd) upon completion of the installation of the Emergency Vehicle Preemption (EVP) Detector Heads.

D Measurement

The department will measure transporting and installing of department furnished Emergency Vehicle Preemption (EVP) Detector Heads With Confirmation Lights as each individual unit, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.3059	Trnspt & Install State Furn EVP Heads With Confirmation Lights IH 43 NB Off Ramp/N Katherine Dr & CTH W	EACH
SPV.0060.3060	Trnspt & Install State Furn EVP Heads With Confirmation Lights IH 43 SB Off Ramp/Port Washington Ln & CTH W	EACH
SPV.0060.3061	Trnspt & Install State Furn EVP Heads With Confirmation Lights CTH W & Donges Bay Rd	EACH

Payment is full compensation for transporting and installing of department furnished Emergency Vehicle Preemption (EVP) Detector Heads With Confirmation Lights and mounting brackets.

167. Pile Dynamic Analyzer (PDA) Testing, Item SPV.0060.4000; Pile Dynamic Analyzer (PDA) Restrikes, Item SPV.0060.4001; CAse Pile Wave Analysis Program (CAPWAP) Evaluation, Item SPV.0060.4002.

A Description

The items consist of providing Pile Dynamic Analyzer (PDA) load testing and analyses/evaluation. This Dynamic Pile Load Testing is being done to set pile resistance criteria. Production piles will be driven conforming to pile resistance criteria produced by the contractor after PDA testing and evaluation is completed at each substructure unit. PDA restrikes will be completed as described in this special provision, or as directed by the engineer.

The piles and pile driving will be paid for under standard spec 550. This applies to both piles installed using the PDA criteria and for production piles installed using the criteria developed by the contractor from the PDA installations.

Data collected during the testing described herein will form the basis for the final driving criteria to be applied to production piles in the substructure unit under consideration. Submit the name and qualifications of the person(s) completing this work. Provide documentation that the person(s) completing this work have successfully completed at least 5 PDA testing projects within the last 3 years, and that these identified projects are of a scope and complexity similar to that anticipated for this project. Persons without this minimum experience will not be allowed to complete work on this project. Also submit documentation of experience with PDA equipment manufactured by Pile Dynamics, Inc. and the CAse Pile Wave Analysis Program (CAPWAP). All dynamic monitoring shall be performed using a PDA (Model PAK, PAX, or PAL). Furnish all equipment necessary for the dynamic monitoring such as sensors, cables, or wireless transmitters, etc. The equipment shall conform to the requirements of ASTM D4945. A person with a minimum of 4 years of experience and who has achieved a minimum of Advanced Level on the Foundation QA Examination for Providers of PDA Testing Services, shall be in charge of PDA operations and of data interpretation. They shall be present on site, or by remote connection, at the time of all PDA testing.

B (Vacant)

C Construction

C.1 Test Locations

Perform dynamic pile load testing at the pile locations identified on the plans. These locations are referred to simply as 'PDA Test Piles' throughout the remainder of this specification. Piles noted as PDA Test Piles are a functional load-carrying part of the completed foundation unit, and not solely used for testing.

C.2 Driving Sequence

Perform PDA testing on the first piles installed in each substructure unit. PDA Test Piles shall be located as shown on the footing plan. No other piles in the substructure unit shall be used for PDA testing unless agreed to by the engineer. Do not drive any other piles in the unit until all required testing has been completed and the final driving criteria for that substructure unit has been determined in writing and accepted by the engineer.

C.3 Pile Driving

Drive PDA Test Piles to penetration depths and/or penetration resistances as directed by the engineer. Drive PDA Test Piles using the same methods and equipment that have been accepted for driving the production piles.

Drive PDA Test Piles to one of the following lengths:

- If the required plan driving resistance is achieved at a pile length less than plan length, stop driving the pile. Pile restrikes will be required as described in Section C.6 of this special provision to document that the minimum plan required driving resistance is achieved.
- If PDA indicated pile capacity is greater than or equal to 85% of the required driving resistance, at the estimated plan length, stop driving. Pile restrikes will be required as described in Section C.6 of this special provision to document that the minimum plan required driving resistance is achieved.
- If the pile resistance at plan length is less than 85% of the required driving resistance, continue to drive the pile until the resistance reaches 85% or more of the plan driving resistance. Upon achieving 85% or more, stop driving. Pile restrikes will be required as described in Section C.6 of this special provision to document that the minimum plan required driving resistance is achieved.

In all cases, the required plan driving resistance will be shown either through end of initial drive data or from restrike data, as defined above.

C.4 Scheduling

Provide a written schedule to the engineer showing all required PDA Test Pile activities for the following week. Submit this schedule a minimum of 2 working days prior to the first day included in the schedule.

Multiple concurrent PDA testing and/or analyses will be allowed. Any delays to the contractors schedule due to coordination or untimeliness of PDA testing or evaluation/analyses will not be grounds for extension of contract time.

C.5 Installation Testing

Perform dynamic measurements following procedures set forth in ASTM D4945 during the driving of piles designated as PDA Test Piles.

Continuous PDA monitoring may require multiple installations of PDA testing equipment depending on the supplied pile length. If multiple piles lengths are used to produce the final installed pile, multiple PDA equipment installations will be required. With the PDA testing equipment attached, drive the pile and monitor using the PDA equipment.

C.6 Restrike Tests

Perform restrike tests on all PDA test piles as part of the initial dynamic pile load testing program as described in section C.5. See restrike criteria given in section C.3.

Wait a minimum of 12 hours and a maximum of 72 hours or a time period as directed by the engineer, after initial pile installation is complete; then, restrike each PDA test pile with the required dynamic testing instruments attached.

Warm the hammer before the restrike by applying at least 20 blows to a non-test pile, or by other means acceptable to the engineer.

The maximum amount of penetration required during the restrike test shall be 6 inches, or the maximum number of hammer blows required will be 30, whichever occurs first.

The pre-approved pile-driving hammer used for restrike testing shall be capable of supplying enough energy to develop a minimum of twice the required driving resistance shown on the plans.

C.7 CAPWAP Evaluation and Drive Criteria

Pile-driving criteria for each substructure unit shall be determined from dynamic pile tests conducted on the total length of each pile noted for PDA Testing in the plans. Submit the required driving resistance and the driving criteria for the production piles determined by dynamic pile testing to the engineer for acceptance for the production pile installation. Electronically submit the driving criteria and a report with the results of the CAPWAP evaluation to the engineer.

Utilize the dynamic test data to establish the following pile driving criteria: (1) a minimum driven length below cutoff level, and (2) a maximum penetration rate per 10 hammer blows for 30 consecutive blows. Drive all remaining piles in each unit in accordance to the established criteria for that unit.

Driving production piles shall continue until the required driving resistance is achieved for 30 consecutive hammer blows. Mark penetration per 10 consecutive hammer blows.

The engineer may alter driving criteria as necessary to assure development of adequate pile capacity. In any pile where pile capacity or integrity is suspect, the engineer may order PDA testing.

D Measurement

The department will measure Pile Dynamic Analyzer (PDA) Testing as each individual unit acceptably completed, in which one unit includes all PDA-related effort on one pile during the initial driving.

The department will measure Pile Dynamic Analyzer (PDA) restrikes as each individual unit acceptably completed, in which one unit includes all of the restrike and testing effort required on an individual pile when it is restruck.

The department will measure CAse Pile Wave Analysis Program (CAPWAP) Evaluation as each individual unit acceptably completed, in which one unit includes all analyses and effort required to provide drive criteria for installation of production piles in one substructure unit.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.4000	Pile Dynamic Analyzer (PDA) Testing	Each
SPV.0060.4001	Pile Dynamic Analyzer (PDA) Restrikes	Each
SPV.0060.4002	CAse Pile Wave Analysis Program (CAPWAP) Evaluation	Each

Payment for Pile Dynamic Analyzer (PDA) Testing is full compensation for facilitating the initial dynamic pile load test on a given pile, including possible multiple sensor installations.

Payment for Pile Dynamic Analyzer (PDA) Restrikes is full compensation for facilitating and performing one restrike test on a pile, including the sensor installation, mobilization of equipment, hammer warm-up, and pile restriking.

Payment for CAse Pile Wave Analysis Program (CAPWAP) Evaluation is full compensation for providing the personnel, software and equipment to evaluate the results of the monitoring for each substructure unit for the purpose of establishing production pile driving criteria, and the electronic submittal of the driving criteria and report with the results of the CAPWAP evaluation.

BOS SPV (201804)

168. Concrete Base Sleeves, Item SPV.0060.4003.

A Description

Furnish and install a corrugated steel pipe sleeve in the reinforced earth zone of mechanically stabilized earth (MSE) retaining walls and other locations shown in the plans. Perform work in accordance to pertinent portions of standard spec 520 and 521, the plans, and as herein provided.

B Materials

The concrete base pipe sleeve shall meet the requirements of standard spec 521.2 for corrugated steel pipe.

C Construction

Set the sleeve within 1 inch of the required position indicated on the plans prior to placing the reinforced earth. Brace the sleeve to maintain position within 2 inches of required position as backfilling proceeds. Place soil reinforcing mats around the sleeve.

For future reference, permanently indicate the depth measured from the top of the sleeve down to the level of the nearest MSE wall soil reinforcement on the inside surface of the sleeve, near the top of the sleeve.

Correct any damage to the sleeve that would hinder the installation of the concrete base prior to placing any additional reinforced earth.

D Measurement

The department will measure Concrete Base Sleeves by each individual unit acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.4003	Concrete Base Sleeves	Each

Payment is full compensation for furnishing and installing the concrete base sleeve.

169. Temporary Water Diversion Culvert C-45-60, Item SPV.0060.4004; Temporary Water Diversion Junction Chamber, Item SPV.0060.4005.

A Description

This special provision describes providing temporary water diversion for the flow of Fish Creek during the installation of Structure C-45-60 and the associated junction chamber as hereinafter described.

B Materials

Follow the applicable sections of the WisDOT Standard Specifications for all materials utilized under this item, as directed by the engineer. Provide evidence that items meet specifications and/or certifications prior to use of such items if requested by the engineer.

C Construction

(1) Alterations to the suggested methodologies of water diversion as noted below may be acceptable. Such alterations should be clearly spelled out in the Erosion Control Implementation Plan (ECIP) for approval by WisDOT and the Wisconsin Department of Natural Resources prior to construction.

(2) *Method #1*: Divert the existing flow through a temporary open channel lined with polyethylene sheeting or other approved plastic. The bottom of the channel shall have a 6-inch depth of coarse aggregate #2 stone. Divert flow into the temporary open channel utilizing barriers made of non-erodible materials, such as rock bags and polyethylene sheets, to prevent siltation into the live stream. Details of the temporary open channel and the non-erodible barrier system shall be detailed in the contractor's ECIP, for approval by the engineer.

(3) *Method #2*: Divert the existing flow through a temporary culvert pipe utilizing barriers made of non-erodible materials, such as rock bags and polyethylene sheets, and a channel comprised of plastic and #2 stone as described under Method #1. Details of the temporary culvert pipe, the temporary channel, and the non-erodible barrier system shall be detailed in the contractor's ECIP, for approval by the engineer.

The following values are provided for the contractor's use in sizing a temporary culvert pipe:

Structure C-45-60
Q10 = 379 cfs

(4) *Method #3*: Dam the flow using non-erodible materials, such as rock bags and polyethylene sheets, and pump the water across the roadway. Details of the damming and pumping system shall be detailed in the contractor's ECIP, for approval by the engineer. The water must be treated to remove suspended solids before it is allowed to enter any waterway or wetland. Provide a settling basin, or other suitable means approved by the engineer, with sufficient capacity and size to provide an efficient means to filter the water from the dewatering operation before it is discharged back into the stream as provided in the Standard Specifications and these special provisions. Direct discharge into the stream will not be permitted. Saturated sediment shall be dewatered in an upland location within a dewatering device. Treatment practices may include the use of a polymer in conjunction with the dewatering mechanism, as approved by the engineer.

(5) Remove the temporary open channel, temporary culvert pipe, or temporary barriers after flow through the new box culvert structure is established. Restore the area outside of the proposed roadbed and slopes to natural surrounding conditions and elevations.

D Measurement

The department will measure Temporary Water Diversion (Location) as a single unit for each diversion, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.4004	Temporary Water Diversion Culvert C-45-60	Each
SPV.0060.4005	Temporary Water Diversion Junction Chamber	Each

Payment is full compensation for providing, installing, removing, and disposing of all materials used to divert flow, maintaining such materials during use, all excavation required, and for restoration of the area to original conditions, unless shown otherwise in the project plans.

170. Adjusting Sanitary Manhole; Item SPV.0060.5000.

A Description

This work includes adjusting sanitary manholes to an elevation as determined by the engineer as well as installing frame and lid, internal frame/chimney seal, in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and amendments (SSSW) and as hereinafter provided.

Add or remove masonry adjusting rings as needed. This item applies to structures to be lowered less than 6 inches or raised less than 12 inches.

B Materials

B.1 Adjusting Rings

Adjustment rings shall be concrete with steel reinforcement in conformance with ASTM C-478. Precast concrete rings shall have an inside diameter to match the manhole opening, be not less than 2 inches nor more than 6 inches high and have a wall thickness of 6 inches unless otherwise specified. The rings shall contain a minimum of one No. 2 reinforcing rod centered within the ring. Do not use any cracked or broken rings. The top of precast manhole cones shall be set a maximum of 18 inches lower than established grade in unimproved areas, with the top of the manhole cover being ringed up flush with the existing ground. The minimum number of adjusting rings shall be one 2-inch ring. The maximum height of adjusting rings shall be 8 inches in paved areas. All joints between the adjusting rings shall be filled with grout or mortar, including between the cone and the adjusting ring and the adjusting ring and the frame. Rings shall be grooved to receive a step.

B.2 Manhole Seal

Furnish new Cretex Specialty Products, NPC Flexrib, or approved equal internal or external frame/chimney seal, as shown in the plans. The seal shall meet the material requirements of section 8.42.3 and the performance requirements of section 8.42.4 of the SSSW.

B.3 Backfill Slurry

Backfill slurry shall meet the material and construction requirements of section 8.43.8 of the SSSW.

C Construction

C.1 General

The location of existing sanitary manholes to be adjusted is indicated on the plans. Adjust these items as shown in the plans. Adjust manholes as necessary so that the frames and lid when placed will be at the established required grade. Install seals in accordance to the manufacturer's recommended installation procedures. Furnish and use backfill slurry in the manhole excavation area to existing surface or to appropriate depth for pavement restoration.

Prior to starting work, submit protocol for preventing any foreign material from falling into the flow line of the sanitary sewer system. Verify no debris falls into the flow line prior to, during and completing construction of manhole. Put in place measures to clean out any foreign materials that fall into the bottom of the manholes. Any private or public sewer backups due to failure to remove foreign material from sanitary sewer system will become the sole financial and physical responsibility of the contractor.

C.2 Surface Preparation

Remove manhole cover and power wire brush the lower 3 inches of the manhole frame to remove any loose rust or scale and repair any imperfections by either grinding smooth or filling with mortar. A smooth, clean sealing surface is required. Realign the casting if it is offset more than approximately 2 inches from the chimney. Remove all loose and protruding mortar and brick from the upper 7-Inch chimney and clean surface by power wire brushing. Provide a 4-Inch wide sealing surface starting 2 inches down from the bottom of the frame.

All sealing surfaces must be circular, reasonably smooth, clean and free of any loose material or excessive voids. If such a surface does not exist for the bottom of the sleeve to seal against, use one-component, quick-set, high strength, non-shrink, polymer modified patching mortar which has been formulated for vertical or overhead use. If the bottom of the sleeve is to seal against the top of an eccentric (straight side) cone and an inadequately high vertical surface does not exist, contact the manufacturer to obtain details to build the required vertical surface.

Use caulk to fill minor irregularities in the bottom sealing surface. The caulk shall be a butyl rubber caulk conforming to AASHTO M-198, Type B. Apply a single bead of the caulk to the center portion of the lower sealing surface of the sleeve.

Any flaws in the manhole frame, such as minor cracks, pits or protrusions, shall be repaired by either filling with mortar or grinding smooth.

C.3 Manhole Seal

Seals shall cover from the frame across all rings and onto the cone.

C.4 Manhole Frames and Lids – City of Mequon

Salvage and reinstall existing frames and lids.

C.5 Manhole Frames and Lids – Village of River Hills

Replace frames and lids with new material and return removed frames and lids to the River Hills Department of Public Works, 7650 N. Pheasant Lane, River Hills, WI 53217.

See bid item: Furnish Sanitary Manhole Cover for specific type of frame and lid.

C.6 Manhole Frames and Lids – Village of Bayside

Replace frames and lids with new material and return removed frames and lids to the Bayside Department of Public Works, 9075 N. Regent Road, Bayside, WI 53217.

See bid item: Furnish Sanitary Manhole Cover for specific type of frame and lid.

D Measurement

The department will measure Adjusting Sanitary Manhole as a unit per each adjustment, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.5000	Adjusting Sanitary Manhole	Each

Payment is full compensation for providing and installing all required materials including adjusting rings, internal frame/chimney seals, and masonry and fittings; for salvaging and reinstalling existing or new covers, including frames and lids; for excavating, backfilling, and compacting; for furnishing and placing backfill slurry; for disposing of surplus materials; and for cleaning out and restoring the structure.

171. Reconstruct Sanitary Manhole, Item SPV.0060.5001.

A Description

This work includes reconstructing a sanitary manhole to an elevation as determined by the engineer, in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and amendments (SSSW), and as hereinafter provided.

B Materials

B.1 Manhole

Manhole barrel and cone sections shall be constructed of precast reinforced concrete sections. Precast manholes and tops shall conform to ASTM Specifications, C478, latest revision.

B.2 Adjusting Rings

Adjustment rings shall be concrete with steel reinforcement in conformance with ASTM C-478. Precast concrete rings shall have an inside diameter to match the manhole opening, be not less than 2 inches nor more than 6 inches high, and have a wall thickness of 6 inches unless otherwise specified. The rings shall contain a minimum of one No. 2 reinforcing rod centered within the ring. Do not use any cracked or broken rings. The top of precast manhole cones shall be set a maximum of 18 inches lower than established grade in unimproved areas, with the top of the manhole cover being ringed up flush with the existing ground. The minimum number of adjusting rings shall be one 2-inch ring. The maximum height of adjusting rings shall be 8 inches in paved areas. All joints between the adjusting rings shall be filled with grout or mortar, including between the cone and the adjusting ring and the adjusting ring and the frame. Rings shall be grooved to receive a step.

B.3 Manhole Seal

Furnish new internal frame/chimney seal as manufactured by Cretex Specialty Products, NPC Flexrib, or approved equal. The seal shall meet the material requirements of section 8.42.3 and the performance requirements of section 8.42.4 of the SSSW.

B.4 Joints

Joints for precast manholes shall meet the requirements of ASTM C-443, latest revision, except that sealant shall be butyl rubber gasket or butyl rubber rope. Flexible butyl rubber gaskets or rope shall comply with the physical requirements for Type “B” gaskets in AASHTO Designation M-198, or Federal Specification SSS-00210-A, sealing compound, preformed plastic for expansion joints and pipe joints.

B.5 Steps

All manholes shall be provided with steps equally spaced vertically on center installed by the manufacturer as shown on the standard detail sheet. Steps shall be embedded into the riser or conical top section of the wall a minimum of 3 inches. Manhole steps shall meet the requirements of section 8.40.1 of the SSSW.

B.6 Elastomeric Waterproofing Sealer

Elastomeric waterproofing membrane shall be a single component, bitumen-modified, moisture-curing polyurethane similar to TREMproof 60 as manufactured by Tremco, 10701 Shaker Blvd., Cleveland, Ohio 44104; Duramem V500 as manufactured by Pecora Corporation, 2601 Oakland Avenue, Garland, Texas 75040; Thiodeck C.F. as manufactured by Toch/Carboline Company, 350 Hanley Industrial Court, St. Louis, Missouri 63144; or equal.

B.7 Plastic Sheet

Plastic sheet shall be clear plastic, minimum 4 mils. thick, of length and width to cover elastomeric waterproofing sealer.

B.8 Backfill Slurry

Backfill slurry shall meet the material and construction requirements of section 8.43.8 of the SSSW.

C Construction

C.1 General

Reconstruct manholes to conform to the detail on the standard detail sheet and in the locations shown in the plans. Install Furnished Sanitary Manhole Cover.

The location of existing sanitary manholes to be reconstructed is indicated on the plans. Reconstruct these items as shown in the plans. Reconstruct manholes as necessary so that the frames and lid when placed will be at the established required grade. Install seals in accordance to the manufacturer's recommended installation procedures. Furnish and use backfill slurry in the manhole excavation area to existing surface or to appropriate depth for pavement restoration.

Prior to starting work, submit protocol for preventing any foreign material from falling into the flow line of the sanitary sewer system. Verify no debris falls into the flow line prior to, during and completing construction of manhole. Put in place measures to clean out any foreign materials that fall into the bottom of the manholes. Any private or public sewer backups due to failure to remove foreign material from sanitary sewer system will become the sole financial and physical responsibility of the contractor.

C.2 Backfill

Backfill with granular backfill material. Place in suitable lifts not exceeding 8 inches loose depth and compact each lift to a minimum of 90 percent of maximum density as determined by AASHTO T 180. Compact with mechanical vibrating or impact tampers.

Remove all form materials and trash from the excavation before placing any backfill. Backfill around manholes only after the concrete has attained 2/3 of the specified compressive strength. Obtain the engineer's approval of concrete work and attained strength prior to backfilling. Backfill shall be brought up uniformly around manholes and structures to prevent unbalanced lateral loading.

Do not operate earth-moving equipment within 5 feet of walls of manholes for the purpose of depositing or compacting backfill materials. Compact backfill adjacent to concrete walls with hand-operated tampers or other equipment that will not damage the manhole.

C.3 Elastomeric Waterproofing Sealer

Elastomeric waterproofing sealer shall be applied to all gravity sewer manholes. Thoroughly sandblast the section of the manhole frame over which the sealer is to be applied, the manhole header, extension and cone and the top 12 inches of the manhole riser. All surfaces shall be free of dust, oil, rust, loose materials and other contaminants. Take necessary precautions to prevent rebound from the sandblasting operation to enter the sewer system. If the mortar between grade rings or brick courses is removed to a depth greater than 1/4 inch by the sandblasting, the joints shall be refilled with mortar as specified herein. All new masonry work shall be cured a minimum of 24 hours prior to applying the waterproofing sealer.

Apply the 4-inch wide bond breaker tape completely around the manhole circumference and centered over the mortar joint between the manhole frame and the manhole extension. Immediately before applying the sealer, wipe all surfaces with a cleaner and immediately prime. The cleaner and primer shall be furnished by the sealer manufacturer. Apply the sealer with a trowel, roller or by spraying to achieve a thickness of not less than 100 wet mils. Do not apply the sealer when the ambient temperature is below 40 degrees F. The sealer shall extend from 9 inches below the bottom of the manhole cone and be carried over the top and onto the flange of the frame a minimum of 5 inches.

Allow the sealer to cure a minimum of 24 hours before backfilling when the ambient temperature is above 70 degrees F, and 48 hours when the ambient temperature is below 70 degrees F. Immediately before backfilling, loosely wrap two layers of 4 mil plastic sheet over the sealed area to prevent direct contact between the sealer and the backfill material.

C.4 Manhole Seal

Seals shall cover from the frame across all rings and onto the cone.

C.5 Manhole Frames and Lids – City of Mequon

Salvage and reinstall existing frames and lids.

C.6 Manhole Frames and Lids – Village of River Hills

Replace frames and lids with new material and return removed frames and lids to the River Hills Department of Public Works, 7650 N. Pheasant Lane, River Hills, WI 53217.

See bid item: Furnish Sanitary Manhole Cover for specific type of frame and lid.

C.7 Manhole Frames and Lids – Village of Bayside

Replace frames and lids with new material and return removed frames and lids to the Bayside Department of Public Works, 9075 N. Regent Road, Bayside, WI 53217.

See bid item: Furnish Sanitary Manhole Cover for specific type of frame and lid.

D Measurement

The department will measure Reconstruct Sanitary Manhole as a unit for each individual manhole, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.5001	Reconstruct Sanitary Manhole	Each

Payment is full compensation for providing and installing all required materials including barrel sections, adjusting rings, internal frame/chimney seals, joints, steps, elastomeric waterproofing sealer, plastic sheet, and masonry and fittings; for salvaging and reinstalling existing or new covers, including frames and lids; for excavating, backfilling, and compacting; for furnishing and placing backfill slurry; for disposing of surplus materials; and for cleaning out and restoring the structure.

172. Furnish Sanitary Manhole Cover, Item SPV.0060.5002.

A Description

This work includes furnishing a standard sanitary sewer manhole frame and lid in accordance to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and amendments (SSSW), and as hereinafter provided.

B Materials

B.1 Frame and Lid – Village of River Hills

New sanitary manhole frame and lid where specified in the plans shall be supplied by the contractor. Sanitary manhole frame shall be Neenah R-1660. Sanitary sewer manhole lid shall be solid gasketing self-sealing lid (non-rocking) with Type ‘T’ gasket and Type B solid lid with two concealed pick holes. Frames for sanitary sewer manholes shall be compatible with the lids.

B.2 Frame and Lid – Village of Bayside

New sanitary manhole frame and lid where specified in the plans shall be supplied by the contractor. Sanitary manhole frame shall be Neenah R-1660. Sanitary sewer manhole lid shall be solid gasketing self-sealing lid (non-rocking) with Type 'T' gasket and Type B solid lid with two concealed pick holes. Frames for sanitary sewer manholes shall be compatible with the lids.

C Construction

The location of sanitary manhole covers to be furnished is indicated on the plans. Install and adjust these items as shown in the plans and in accord with the item Reconstruct Sanitary Manhole.

D Measurement

The department will measure Furnish Sanitary Manhole Cover as a unit for each individual manhole, acceptably furnished.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.5002	Furnish Sanitary Manhole Cover	Each

Payment is full compensation for furnishing all required materials including, frames and lids and other required materials.

173. Adjusting Water Valve Boxes Item SPV.0060.5010.

A Description

This special provision describes the adjustment of existing water valve boxes to match the proposed finish grade as shown in the plans and as hereinafter provided.

B (Vacant)

C Construction

C.1 Water Valve Boxes

Adjust water valve boxes vertically as required by contractor operations. Set the finish service of valve box in a plumb, vertical position flush with the pavement or terrace. Protect the top section of the box. Provide a new top section if broken.

Ensure access to valve always remains available for Utility use.

Correct the condition of the valve if Mequon Water Utility determines the valve is inoperable even after pavement is installed at the contractor's expense. Make corrections within five days of notification by the City.

D Measurement

The department will measure Adjusting Water Valve Boxes as each individual unit, acceptably completed, regardless of the number of adjustments made to the valve box.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.5010	Adjusting Water Valve Boxes	Each

Payment is full compensation for providing all required materials; for removing, reinstalling and adjusting the valves. The contractor shall replace valves rendered unusable by the contractor's operations or rendered inoperable by Glendale Water Utility at no expense to the department.

174. Hydrant Assembly Relocation, Item SPV.0060.5020.

A Description

This work includes relocating existing hydrants horizontally and vertically at locations indicated in the plans, conforming to the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and as hereinafter provided.

B Materials

B.1 Polyethylene Wrap.

Polyethylene wrap shall be provided on all ductile iron water main and

cast iron or ductile iron fittings and meet the requirements of Chapter 4.4.4 and Chapter 8.21.0 of the Standard Specifications for Sewer and Water Construction in Wisconsin.

B.2 Tracer Wire.

All water main, including stubs, dead end mains, hydrant leads, and services shall be provided with tracer wire according to Chapter 2.11.0 of the "Standard Specifications" and as follows:

Tracer wire shall be 10 gauge solid copper wire with a solid PVC insulation coating suitable for underground installation.

A loop of locating wire shall be run to the surface at all hydrants, with a ValCO tracer wire terminal box. The box shall be located behind the hydrant with at least 2 feet of wire inside the box.

Splice shall be accomplished by joining the 2 bare ends of the wires with either a mechanical split bolt compression fitting sealed with silicone sealant, aqua seal or equal, covered with Scotch #33 electrical tape. No bare wire shall be exposed. The two ends of the wire shall be knotted to prevent strain on the splice.

B.3 Restraining Fittings, Valves and Sleeves.

Restrain all fittings (bends, tees, caps and plugs), valves and sleeves using MEGALUG restrained joints as manufactured by EBAA Iron Sales, Inc. of Eastland, Texas.

B.4 Ductile Iron Pipe.

Ductile iron pipe meeting the requirements of AWWA Standard C151 (ANS121.51), cement mortar lined in accordance with AWWA C104 (ANSI 21.4) with internal and external bituminous coating and furnished with either push-on or mechanical joints with rubber gaskets. Do not furnish cable bonding. All ductile iron pipe shall Class 52.

B.5 Fittings (Used With Ductile Iron and PVC Pipe).

Fittings shall be ductile iron conforming to AWWA C-110, C-153 DI compact fittings. All fittings shall have a cement mortar lining with an internal and external bituminous coating meeting the requirements of AWWA Standard C104 (ANSI 21.4). Fittings shall be supplied with mechanical joints with rubber gaskets. Fittings shall be encased with polyethylene wrap.

All fittings shall be North American, Sigma or Star made only.

B.6 Bolts

All water main nuts and bolts, including connections to mains, fittings, valves and hydrants, shall be CorBLUE nuts and bolts or approved corrosion resistant equivalents which conform to AWWA C-111.

B.7 Hydrant Leads

Hydrant leads shall be six (6) inch, Class 52, ductile iron pipe.

B.8 Hydrants

Hydrants shall conform to AWWA C-502 and meet the requirements of Chapter 8.26.0 of the Standard Specifications. Fire hydrants shall be Waterous Pacer break flange type.

C Construction

C.1 Hydrant Leads

Restrain hydrants with wooden thrust blocking and by anchoring to the main. Restrain all joints with: MEGALUG restrained joints, anchoring pipe and fittings, or restrained joint pipe as noted above. Provide wooden thrust blocks for both the hydrant and hydrant tee. Secure the hydrant lead to the main using an anchoring tee.

C.2 Barrel Extensions

Hydrants shall be furnished for the depth of bury shown on the Plans. Hydrants requiring greater than 7-1/2 feet of bury shall be furnished as standard 7-1/2 foot hydrants with extensions as required. Hydrant extensions shall be compatible with hydrant barrel and stem sections and shall be installed at the top of the barrel section. The distance from the ground line to the centerline of the lowest nozzle shall be from 18 to 23 inches. The cost of furnishing barrel extensions shall be included in the unit price bid for hydrants or hydrant assemblies. Secure extension flanges using stainless steel nuts and bolts.

D Measurement

The department will measure Hydrant Assembly Relocation by each hydrant assembly provided and installed, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.5020	Hydrant Assembly Relocation	Each

Payment is full compensation for furnishing all materials; excavating, backfilling, and compacting.

175. Valve Stem Extension and New Valve Box Item SPV.0060.5030.

A Description

This special provision describes the installation of a valve stem riser on existing water valves and installation of a new valve box to match the proposed finish grade as shown in the plans and as hereinafter provided.

B Materials

B.1 Water Valve Boxes

Valve Boxes shall be 5¼ inch diameter, three piece screw type box with a number six base. Covers shall be marked "WATER" and shall be Stay Put type, Clow series F-2494 or approved equal and meet the requirements of Chapter 8.29.0 of Standard Specifications

B.2 Water Valve Box Support

Valve box support shall be 6 Base Multi-Fit Adaptor from Adaptor, Inc., no exceptions.

B.3 Valve Stem Extension

Valve stem extensions shall be stainless steel with 2-inch square socket on one end and 2-inch square nut on the other. Extensions shall match the length called out on plans.

C Construction

C.1 Water Valve Boxes

Install valve stem extensions and water valve boxes vertically as required by contractor operations. Set the finish service of valve box in a plumb, vertical position flush with the pavement or terrace. Protect the top section of the box. Provide 2-foot valve box extensions as needed to reach finished grade.

Correct the condition of the valve if Mequon Water Utility determines the valve is inoperable even after pavement is installed at the contractor's expense. Make corrections within five days of notification by the city.

D Measurement

The department will measure Adjusting Water Valve Boxes as each individual unit, acceptably completed, regardless of the number of adjustments made to the valve box.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.5030	Valve Stem Extension and New Valve Box	Each

Payment is full compensation for providing all required materials; for removing, reinstalling and adjusting the valves. The contractor shall replace valves rendered unusable by the contractor's operations or rendered inoperable by Glendale Water Utility at no expense to the department.

176. Pavement Cleanup Project 1229-04-74, Item SPV.0075.0601.

A Description

This special provision describes cleanup of dust and debris from pavements within and adjacent to the job site. Pavement Cleanup includes surveillance and reporting of all active haul routes.

B Materials

B.1 Pavement Cleanup

Furnish a vacuum-type street sweeper equipped with a power broom, water spray system, and a vacuum collection system.

Use vacuum equipment with a self-contained particulate collector capable of preventing discharge from the collection bin into the atmosphere.

Use a vacuum-type sweeper as the primary sweeper, except as specified in this special provision or approved by the engineer.

C Construction

C.1 Surveillance

Provide daily surveillance of active haul routes to identify if material is being tracked from the jobsite. Document the condition of the roads and all sweeping recommendations in a daily report. Submit reports to the engineer daily, including hourly metered tickets for that day's sweeping activities.

C.2 Pavement Cleanup

Keep all pavements, sidewalks, driveways, curb lanes and gutters within the project boundaries, free of dust and debris generated from all activity under the contract. Keep all pavements, sidewalks, driveways, curb lanes, and gutters adjacent to the project free of dust and debris that are caused by land disturbing, dust generating activities, as defined in the contractor's Dust Control Implementation Plan (DCIP). Provide routine sweeping of all pavements, sidewalks, driveways, curb lanes and gutters on local-street active haul routes as defined in the DCIP or as directed by the engineer. Include the following roadways for routine sweeping:

- IH 43 (NB&SB)
- On/Off Ramps

- Port Washington Road
- County Line Road
- Katherine Drive
- And all other roadways approved by the department

In addition to routine sweeping, conduct sweepings as the engineer directs or approves, to eliminate dust problems that might arise during off-work hours or emergencies. Provide the engineer with a contact person available at all times to respond to requests for emergency sweeping. Coordinate with engineer to determine deadlines for responding to emergency sweeping requests and cleaning up spillage and material tracked to/from the project.

Skid steers with mechanical power brooms may only be used on sidewalks and driveways whose pavements will not support the weight of a street sweeper, unless otherwise approved by the engineer. Do not dry sweep. Ensure all broomed equipment used for sweeping has a functioning water bar.

D Measurement

The department will measure Pavement Cleanup (Project 1229-04-74) by the hour acceptably completed.

Tickets shall include:

- Date
- Company
- Operator name
- Equipment make/model
- Routes swept
- Total hours.

Total hours shall be to the nearest 0.25 hour that work under this item was performed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV. 0075.0601	Pavement Cleanup Project 1229-04-74	HR

Payment is full compensation for daily surveillance; preparing and submitting the daily surveillance report with hourly metered tickets; mobilization; sweeping; and disposing of materials.

sef-104-006 (20170323)

177. Seeding Mixture No. 30 Special, Item SPV.0085.0003

A Description

This special provision describes providing and sowing a salt tolerant seed mix on areas shown in the plans, according to standard spec 630 except as follows:

B Materials

Replace 630.2.1.5.1.1 Table 630-1 Highway Seed Mixtures with the following:

Seeding Mix No. 30 Special will conform to the following the species, proportions, purity, and germination:

Species	Purity Minimum %	Germination Minimum %	Mixture Proportion %
Perennial Ryegrass	97	90	10
Hard Fescue	97	85	15
Red Fescue	97	85	25
Salt Grass	98	85	20
Tall Fescue	98	85	30

C Construction

Replace 630.3.5 (1) with the following:

(1) Use the following sowing rates for the seeds in pounds per 1000 square feet:

- Seed Mixture 30 Special at 4.6 pounds

D Measurement

The department will measure Seed Mix No. 30 by the pound, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0085.0003	Seeding Mix No. 30 Special	LBS

Payment is full compensation for providing, handling, and storing seed, for preparing the seed bed, sowing, covering, and firming the seed.

178. Concrete Curb and Gutter 54-Inch Type A, Item SPV.0090.0001.

A Description

This special provision describes constructing Concrete Curb and Gutter 54-Inch according to pertinent requirements of standard spec 601, construction details, and plan details.

B Materials

Use materials as described in the construction detail shown in the plans and as described in standard spec 601.2.

C Construction

Perform work as specified in standard spec 601.3.

D Measurement

The department will measure Concrete Curb and Gutter 54-Inch Type A by the linear foot, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0001	Concrete Curb and Gutter 54-Inch Type A	LF

Payment is full compensation for preparing the foundation; all special construction required at driveway entrances, alley entrances or curb ramps; for providing all materials, including concrete, expansion joints and tie bars in unhardened concrete; for placing, finishing, protecting and curing concrete; and for hand forming or sawing contraction joints.

179. Concrete Barrier Type S42 Special, Item SPV.0090.0002; Type S56 Special, Item SPV.0090.0003.

A Description

This special provision describes constructing Concrete Barrier (Type) in accordance to standard spec 603, details shown in the plans, and as hereinafter provided.

B (Vacant)

C (Vacant)

D Measurement

The department will measure Concrete Barrier (Type) by the linear foot, acceptably placed in accordance to the contract.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0002	Concrete Barrier Type S42 Special	LF
SPV.0090.0003	Concrete Barrier Type S56 Special	LF

180. Salvage and Reinstall Fence, Item SPV.0090.0004.

A Description

This special provision describes salvaging, maintaining, and reinstalling existing wooden privacy fence, as shown on the plans and as directed by the engineer, in accordance to section 616 of the standard specifications, and as hereinafter provided. The intent of this specification is to fully enclose the property similar to the existing condition by reinstalling the salvaged fence along its new location.

B Materials

Reuse existing salvaged fence. If existing fence is unsalvageable due to poor condition or issues encountered during removal, furnish fencing materials comparable to existing.

C Construction

Fence posts may be driven into the ground or set in augered holes, backfilled and compacted. Minimum embedment shall be 4 feet. Notify property owners 30 working days in advance of fence removal. Reinstall fence within 5 calendar days of removal.

D Measurement

The department will measure Salvaged and Reinstalled Fence in place by the linear foot from end posts, center to center, along the ground line. Additional payment for new fencing materials will not be made.

E Payment

The department will pay for measured quantities at the contract unit price under the

following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0004	Salvage and Reinstall Fence	LF

181. Maintain and Salvage Temporary Precast Concrete Barrier Left In Place, Item SPV.0090.0015.

A Description

This special provision describes salvaging and delivering temporary precast concrete barrier left in place according to standard spec 614 and as hereinafter provided.

B (Vacant)

C Construction

Salvage the temporary precast concrete barrier left in place according to standard spec 614.3.9.

Remove and stockpile temporary precast concrete barrier left in place at an on-site location determined by the engineer. The temporary precast concrete barrier left in place shall be undamaged and in good working order as approved by the engineer. Give two days advance notice to Milwaukee County and Ozaukee County before starting the salvaging work to coordinate delivery arrangements. For temporary precast concrete barrier being delivered to Milwaukee County, contact Kevin Kent, Milwaukee County, 10320 W Watertown Plank Road, Milwaukee, WI 53224 at (414) 454-4100. For temporary precast concrete barrier being delivered to Ozaukee County, contact JON EDGREN 410 SOUTH SPRING ST PORT WASHINGTON, WI 53074 at: (262) 238-8335

D Measurement

The department will measure Salvage Temporary Precast Concrete Barrier Left In Place by the linear foot, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT

Payment is full compensation for salvaging and delivering the temporary precast concrete barrier.

182. Heavy Duty Silt Fence, Item SPV.0090.0301.

A Description

This special provision describes the delivery, installation, maintenance and removal of Heavy Duty Silt Fence. Install fence as directed by the engineer. Do not remove fence until directed by the engineer. If so directed by the engineer, remove silt at no additional costs. Silt shall be removed before the removal of the fence.

B Materials

Provide Heavy Duty Silt Fence consisting of a composite of woven wire fence, posts, geotextile fabric, sand bags, rock bags and fasteners to be assembled by the contractor. Woven wire fence shall be a standard field fence type, with a maximum mesh spacing of 6-inches and minimum 12 gauge wire.

Provide “studded tee” or “U” type metal posts with a minimum length of 8 feet –3 inches and a minimum weight of 1.3 lb/ft.

Provide geotextile fabric meeting the following requirements

Property	Unit	Test Method	Minimum Average Roll Value
Grab Tensile Strength	LB.	ASTM D4632	380
Grab Tensile Elongation	%	ASTM D4632	50
Puncture Strength	LB.	ASTM D4833	240
Trapezoid Tear Strength	LB.	ASTM D4533	145
Apparent Opening Size	U.S. Standard Sieve	ASTM D4751	170 (0.09 mm)
Permittivity	sec^{-1}	ASTM D4491	0.7
Water Flow Rate	$Gal/min/ft^2$	ASTM D4491	50
UV Resistance after 500 hours	% strength retained	ASTM D4355	70

Furnish a manufacturer’s Certified Report of Test or Analysis that the geotextile fabric delivered for use in the work meets the above requirements to the engineer at least 15 days prior to use in the work. Provide geotextile fabric bearing markings to clearly identify it with the applicable test report furnished to the engineer.

Supply material in 15’9” wide rolls and cut in half.

C Construction

Install the Heavy Duty Silt Fence as directed by the engineer. Space ties and anchors to adequately resist wave action.

D Measurement

The department will measure Heavy Duty Silt Fence by the linear foot along the fence.

E Payment

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

ITEM NUMBER DESCRIPTION UNIT

SPV.0090.0301	Heavy Duty Silt Fence	LF

Payment is full compensation for all furnishing, assembling, erecting, maintaining, and removing the silt fence; and for furnishing all labor, tools, equipment and incidentals necessary to complete this item of work.

183. Concrete Barrier Temporary Precast Left In Place, Item SPV.0090.0600.

A Description

This special provision describes leaving in place temporary precast reinforced concrete barrier conforming to the shape, dimensions, and details the plans show and conforming to the appropriate provisions of standard spec 603 and as modified in this special provision.

Concrete Barrier Temporary Precast Left In Place becomes property of the department after final acceptance by the engineer.

B (Vacant)

C Construction

C.1 Delivery, On-The-Project Trucking, and Removal

Replace standard spec 603.3.2.2 (1) with the following:

Under the Concrete Barrier Temporary Precast Left In Place bid item, furnish and deliver temporary barrier to worksites within the project and leave it in place upon project completion.

D Measurement

The department will measure the Concrete Barrier Temporary Precast Left In Place by the linear foot acceptably completed, measured as the linear feet of installed length left in place once for each contract-identified worksite within the project and other moves the engineer directs. The department will only measure moves requiring a truck haul. The department will not measure moves made solely to accommodate the contractor's means and methods.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0600	Concrete Barrier Temporary Precast Left In Place	LF

Replace standard spec 603.5.3 (1) with the following:

Payment for Concrete Barrier Temporary Precast Left In Place is full compensation for providing barrier, initial delivery, trucking between worksites and leaving barrier, steel rail connections and steel cap rail in place after contract completion.

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184. Glare Screens Temporary, Item SPV.0090.0910.

A Description

This special provision describes furnishing, installing, maintaining, and removing a modular paddle glare guard system on concrete barrier temporary precast at the indicated locations according to the plans and standard specifications, as directed by the engineer and as hereinafter provided.

B Materials

Utilize modular glare guard units consisting of vertical blades, bases, and a horizontal base rail. Utilize paddle devices a minimum of 24-inches in height and constructed of durable, impact resistant, non-warping flexible materials.

Utilize modular units with cumulative nominal length equal to the length of the temporary barrier on which they are installed so that the joint between the barrier sections shall not be spanned by any one unit. Units shall not alter the design of the concrete barrier.

Design the relative connection strengths between various components of the assembly to minimize the potential impact and debris hazard to approaching traffic and to simplify repairs. Fabricate the modular units in a manner to allow replacement of individual blades while the modular unit remains in place.

The blade, base and rail shall be made of high impact materials with sufficient strength to withstand three impacts from a horizontal steel bar traveling at 40 mph and impacting at mid-height of the blade. After three impacts, there shall be no evidence of cracking, splitting, delaminating or separation from the system.

Provide a paddle glare guard from a manufacturer below or an approved equal:

Manufacturer	Address
Safe-Hit Corporation	2405 IH 35 West, New Braunfels, Texas, 78130
Carsonite International	2900 Lockhead Way, Carson City, Nevada, 89701
Flexstake Incorporated	2150 Andrea Lane, Fort Myers, Florida, 33912

C Construction

Attach the base rail to the top of the concrete barrier temporary precast by a mechanical or adhesive system with a minimum pullout and shear of 3000 psi. All mounting hardware shall be as specified by the manufacturer.

D Measurement

The department will measure Glare Screens Temporary by the linear foot of paddle glare guard, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.0910	Glare Screens Temporary	LF

Payment is full compensation for furnishing, installing, maintaining and removing the Glare Screens Temporary.

185. Outdoor Rated Network Cable, Item SPV.0090.2001.

A Description

This special provision describes furnishing and installing outdoor rated network cable in new or existing conduit or as directed by the engineer. It also includes installing state-furnished network communications extenders as required.

B Materials

Furnish outdoor rated Category 5e, or better, UTP cable with water-blocking flooded core and UV-resistant polyethylene jacket. Cable shall consist of 4-pairs of 24 AWG solid copper conductors and shall meet the requirements of ANSI/TIA/EIA 5 68A Category 5e, CENELEC EN50173, ICEA S-90-661, and ISO/IEC 11801.

Furnish an RJ45 connector for each end of the cable.

State-furnished network communications extenders.

C Construction

Install the cable following the manufacturer's installation guidelines.

Install the RJ45 connectors (if not done prior to installation) according to manufacturer's installation guidelines.

Install a network communications extender as shown on the plans when cable length exceeds 100 meters.

Use a purpose built “Pass-Fail” network cable tester to test the network cable installation for Category 5, Class E compliance. Repair any connections or cable as needed for the test to register a “Pass”.

Connect the cable to the devices on each end as shown on the plans or as directed by the engineer.

D Measurement

The department will measure Outdoor Rated Network Cable, acceptably installed and tested, by the linear foot.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.2001	Outdoor Rated Network Cable	L.F.

Payment is full compensation for furnishing, installing, and testing the outdoor rated network cable; for installing network communications extenders where required; for connecting the cable to the devices at each end of the cable; and for all labor, transportation, and incidentals necessary to complete the work.

186. 4-Inch Water Main By-Pass Piping, Item SPV.0090.5010.

A Description

This work includes construction of a temporary 4-inch water main by-pass piping during installation of the proposed 84-inch box culvert in accordance with the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and amendments (SSSW).

B Materials

B.1 Water Main - POLYVINYL CHLORIDE (PVC) PLASTIC PIPE

Pipe shall be made of compounds conforming to ASTM D1784 in accordance with the material requirements of AWWA C900 (4 inch to 12 inch diameter pipe. PVC Watermain shall be in accordance with Chapter 8.20.0 of the Standard Specifications. Pipe shall have a minimum dimension ratio (DR) of 18 corresponding to a pressure class of 235 psi for PVC. The PVC compound 12454. Joints: Integral bell with elastomeric gasket joints providing a water-tight seal conforming to ASTM F477.

B.2 Water Main - HIGH DENSITY POLYETHYLENE PIPE

HDPE water main pipe shall conform to AWWA C-906 standards and shall have 3 equally spaced blue stripes or a solid blue color coded exterior surface. HDPE water main pipe shall be Ductile Iron Pipe Size (DIPS) and shall have a DR-11. Black HDPE materials used for the manufacture of polyethylene pipe and fittings shall be PE 4710 high density polyethylene meeting ASTM D 3350 cell classification 445574C and shall be listed in the name of the pipe and fitting. The material shall be listed and approved for potable water in accordance with NSF/ANSI 61

B.3 Water Main - CERTA-LOK PVC PIPE

Cetra-Lok PVC pipe, (C900) restraint joint pipe conforming to the requirements of PVC pipe and fittings listed above in Section B.2. Pipe and couplings conforming to AWWA C900/C905. Restrained joint pipe

system meet all of the short and long term pressure test requirements of AWWA C900-07 / C905-10. High-strength, flexible thermoplastic splines are inserted into mating, precision machined grooves in the pipe and coupling during assembly to provide full 360° restraint with evenly distributed loading.

B.4 Water Main - DUCTILE IRON PIPE

Ductile Iron pipe, class 52, meeting requirements of AWWA C151, Cement lines, with push-on joints conforming to AWWA C111.

B.5 Ductile Iron Fittings

Eater main fittings shall conform to AWWA C-110, C-153 DI compact fittings and Chapter 8.22 of Standard Specifications. Ductile iron compact fittings shall be rated at 350 psi. All fitting shall be mechanical joint, unless otherwise specified. Mechanical joints shall be made with "CorBLUE" nuts and bolts, or approved corrosion resistant equivalents which conform to AWWA C-111. All mechanical joints shall be restrained with EBBA Iron "Megalug" restraint devices for the particular type of pipe (PVC, HDPE, DI) or equal.

Mechanical joints shall be restrained in accordance with Chapter File 47A of Standard Specifications. Restraint harness shall be EBBA Iron series 1500 for C900 pipe and series 2800 for C905, pipe or approved equal.

B.5 HDPE Fittings

Mechanical joint (MJ) adapters shall be used for joining HDPE water main to a fitting, or valve to prevent pipe pull out. MJ adapters shall be restrained with EBBA Iron “ Megalug” restraint devices for HDPE pipe. All fabricated HDPE fitting must be individually approved by the engineer. Electrofusion couplings shall be Friatec electrofusion couplings. Electrofusion couplings will only be allowed if approved by the Utility Engineer. Stiffeners for pipe 4 inch and larger shall be Cascade brand drive-in stiffeners or approved equal.

C Construction

C.1 General

Install pipe and fittings in accordance with the manufacturer’s instructions and with the details shown on the Drawings. Permanently support, remove, relocate, or reconstruct existing utility pipes, cables, structures, or other appurtenances when they obstruct the line, grade, or location of the pipe or appurtenance. Remove foreign matter or dirt from the inside of pipe. All jointing of mechanical joint pipe and push-on joint pipe in accordance to AWWA C600.

Outside of the spigot and the inside of the bell, wire brush, wipe clean and dry. Keep pipe ends clean until joints are made. Lay and maintain pipe and appurtenances to the alignment, grade, and location shown on the Drawings. No deviation from the Drawing alignment, grade, or location is allowed, unless approved by the Engineer. No pipe shall be laid in water or when the trench conditions are unsuitable for such Work. Precautions are to be taken to prevent debris or groundwater from entering the pipe being laid.

C.2 Sequence

Before constructing proposed 84-inch box culvert under the existing 12-inch water main on Katherine Dr. install temporary 4-inch water main by-pass piping. After by-pass piping has been installed and past pressure and safe sample testing, connect by-pass piping to the existing 12-inch main according to the project drawings. Coordinate shut-down of the existing 12-inch main with the Mequon Water Utility (Jim Voigt 262.559.8656) to depressurize existing main that will be exposed during installation of the box culvert section.

After installation of the box culvert section under the existing 12-inch water main backfill the excavation. Bed the existing 12-inch main with 3/8” Crushed Chips conforming to the requirements of 8.43.2 of Standard Specifications. Coordinate repressurizing the existing 12-inch main with Mequon Water Utility. After 12-inch main has been flushed and is back in operation, remove the temporary water main and re-install cap on the 4-inch water valves.

C.3 Field Quality Control

Water Utility will assist the Contractor in conducting the filling, flushing, disinfecting, and water sampling within 48 hours after the request by the contractor is made. All water system testing shall follow the Water Utility's disinfection, flushing, and testing standards.

Hydrostatic Pressure Test in accordance with Chapter 4.15.0, Hydrostatic Pressure Test of Standard Specifications.

Water main disinfection general requirement: AWWA C651 – Disinfecting Water Mains. The Utility will assist in the disinfection and testing of the water system.

D Measurement

The department will measure 4-inch water main by-pass piping per lineal foot, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.5010	4-inch Water Main By-Pass Piping	LF

Payment is full compensation for construction of temporary by-pass piping including connections to existing 12-inch main, testing, backfill material, supporting existing 12-inch main, and removal and abandonment of temporary 4-inch main No additional monies will be paid to the contractor for repair/replacement of existing 12-inch main due to damage caused by the contractor's during construction operations of the 84-inch box culvert.

187. Field Office Special, Item SPV.0135.0001

A Description

This special provision describes furnishing, equipping, and maintaining field office facilities. Furnish leased office space with an extendable and transferable lease through March 31, 2025.

B Materials

Obtain engineer approval before providing an existing office building, or an existing building converted to office-type use. Ensure that the building meets all applicable health, fire, and building codes and standards. Provide first aid kits, fire extinguishers, and all other supplies required to meet all applicable health, fire, and building codes and standards. The field office must be located within or between the Brown Deer Road Interchange and Good Hope Road Interchange in Milwaukee or Ozaukee County and within 1 mile east or west side of I-43. Also, all floor space must be located on the first floor.

Provide; maintain in clean good working condition; and stock lavatory with sanitary supplies, including a sufficient supply of soap; hand sanitizer; toilet paper; and paper towels. The on-site sanitary facilities must meet Federal, State, and local health department requirements at all times.

Equip these facilities with suitable natural and light emitting diode (LED) DSL lighting. Also provide adequate heating and air conditioning equipment and fuel necessary to maintain a temperature range from 68 F to 80 F during the hours occupied.

Equip:

- Doors and windows with locks.
- Exterior doors with dead bolt locks.
- Windows with exterior screens to allow adequate ventilation.

Provide at least 13,000 square feet interior useable floor space, including shared spaces, such as plan review areas, conference rooms, storage areas, meeting areas, hallways, and restrooms. Provide a minimum of 1,000 square feet of storage area.

Meeting Area 1: Obtain engineer's approval of a suitably sized, open meeting area, including tables and folding chairs to accommodate regularly scheduled meetings of 50 people, minimum 1500 sf. Include a minimum of two 50-inch minimum wall mounted tv/monitor with appropriate cables to connect to computer

display, a 4’ x 8’ white board with dry erase markers and erasers, and phone jack with phone service. Provide one new speakerphone with a minimum of four wireless microphones.

Meeting Area 2: Obtain engineer’s approval of a suitably sized, open meeting area, including tables and folding chairs to accommodate regularly scheduled meetings of 20 people. Include a 4’ x 8’ white board with dry erase markers and erasers, a 50-inch minimum wall mounted tv/monitor with appropriate cables to connect to computer display, and phone jack with phone service. Provide one new speakerphone with a minimum of two wireless microphones.

Reception Area: Provide an area for a reception, a minimum size of 375 sf.

Break Room: Provide an area to accommodate 50 people for lunch or coffee breaks, 1500 sf minimum.

Storage Room: 1,000 sf minimum with a door and two lock/key sets.

Work Stations Cubicles: 50 work stations cubicles, each work station cubicle 64 sf minimum with dividers between each work station.

Provide one ergonomically correct office chair in working condition, with, at a minimum, the following features, for each of fifty (50) workstation. The work station cubicle will:

- Five-legged base with casters.
- High backrest.
- Seat adjustable from 15 inches to 22 inches from the floor with a "seamless waterfall, rounded front edge.

For all work stations, provide unlimited high-speed internet service for exclusive department use via cable or DSL connection with a modem/router and capable of supporting cloud enabled file sharing, voice over internet protocol (VoIP), video conferencing, and web-based applications. Ensure that system meets the following:

- Includes a wireless network for the field office.
- Can accommodate IPSec based VPN products.
- Has a broadband bandwidth range with minimum connection speed of 100 Mbps + 1/2 Mbps per user download and 20 Mbps upload. Coordinate network setup at the leased office with the WisDOT network team.
- Include a hard wire connection for internet meeting the minimum connection speed to each workstation.

Provide and install into the field office two telephone exchanges with local and long-distance service or VoIP phone network. The voice exchanges are to be configured so that the incoming calls for any voice exchange utilize an open exchange. The telephones and the communication services are for the sole use of the department staff.

Provide two (2) new Windows 10 compliant, high-capacity color printer/photocopier/scanners capable of printing and copying up to 11" x 17" paper, with the ability to perform duplexing, sorting, stapling, and multiple sheet auto feeding, with a built-in scanner with the capability to scan black and white and color up to 11" x 17" at a minimum of 1200dpi, and with a direct or field office wireless network connection, as approved by the engineer.

Provide and maintain an adequate supply of bottled drinking water. Provide two (2) refrigerators with a minimum 18 cubic foot capacity, including a freezer. Provide two (2) microwave ovens with a minimum 1.1 cubic foot capacity, a minimum of 1000 watts, and a removable glass turntable.

Maintain the field office equipment and provide supplies for the photocopiers as requested by the engineer.

Provide for the professional cleaning of the field office during regular business hours once per week.

Provide carpet runners at all entrances. Clean weekly and replace as necessary or as directed by the engineer.

Provide clearly marked recycling and waste receptacles within the field office, and separate recycling and waste dumpsters near the field office. Cover outdoor containers to keep out rain, and snow. Provide regularly scheduled recycling and waste pick-up.

Include an adjacent, no-fee, lighted parking lot large enough to accommodate the needs of the field office at peak usage, as approved by the engineer. Maintain the parking lot and egress, including snow removal.

C Construction

Do not combine field offices, or combine them with, or attach them to, any buildings used by the contractor, unless the engineer allows in writing. The contractor may furnish, if the contract allows, the field offices jointly in cooperation with other contractors on designated projects.

Do not begin construction operations requiring the use of the field offices by the department until the required field offices are approved by the engineer, furnished, fully equipped, and made ready for use as the engineer directs.

The field office shall remain available for department until the engineer approves its closure. These field facilities are for the sole use of the department and upon contract completion remain the contractor's property.

D Measurement

The department will measure Field Office Special by the month, or partial month where applicable, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0135.0001	Field Office Special	MONTH

Payment is full compensation for providing, equipping, securing, cleaning and maintaining the facility and associated parking lot; for telecommunications equipment, installation, and service fees; and for providing all incidentals, including bottled water, refrigerator/freezers, microwaves, utilities, fuel, safety, ventilation, toilet facilities, and office supplies as required, either independently or jointly, for the time specified in section C.

Transfer the Field office special including all parking; lighting; field office units; office supplies, equipment, and furniture; lavatory supplies and equipment; secured access; telecommunications and IT equipment and services; utility services; cleaning and maintenance services; and all incidentals listed within this special provision to the DEPARTMENT designated representative at the end of this contract.

The DEPARTMENT has the option not to transfer the lease at the end of this contract by providing a six months advance notice.

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188. Longitudinal Grooving Bridge Deck, Item SPV.0165.4000.

A Description

This special provision describes providing longitudinal deck grooves parallel to the centerline of the roadway prior to opening the bridge to traffic as directed by the engineer.

B Materials

Use a grooving machine containing blades mounted on a multi-blade arbor on a self-propelled machine built for grooving hardened concrete surfaces.

Use a grooving machine with a depth control device that detects variations in the deck surface and adjusts the cutting head height to maintain a specified depth of groove.

Equip the grooving machine with a guide device to control multi-pass alignment.

C Construction

Groove the pavement longitudinally without damaging the concrete deck surface.

Complete a longitudinal grooving operation that results in a uniformly grooved deck surface.

Cut grooves continuously across the deck width to within 18 inches of the barrier rail, curb line, or median divider. If metal floor drains extend more than 18 inches from the barrier rail, curb line, or median divider; all grooves on the bridge deck surface are to end within 6 inches of the floor drain perimeter.

At skewed metal edged expansion joints in the bridge deck surface, end all grooves on the bridge deck surface within 6 inches of the joint leaving no ungrooved surface adjacent to each side of the joint greater than 6 inches in width on the deck side of the expansion joints.

Produce grooves that are continuous across construction joints or other joints in the concrete deck surface less than 1/2-inch wide.

Construct longitudinal grooves with the following criteria:

Width (in)	Depth (in)	Spacing C-C (in)	Width Tolerance (in)	Depth Tolerance (in)	Spacing Tolerance (in)
1/8	3/16	3/4	0 to 1/16	± 1/16	± 1/16

Collect, remove and dispose of solid material residue and liquid waste resulting from grooving operations by vacuuming in a manner satisfactory to the engineer.

D Measurement

The department will measure Longitudinal Grooving Bridge Deck by the square foot acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0165.4000	Longitudinal Grooving Bridge Deck	SF

Payment for Longitudinal Grooving Bridge Deck is full compensation for providing the required machinery and operators; for grooving, for collecting, removing and properly disposing of all waste materials.

189. Wall Concrete Panel Mechanically Stabilized Earth R-40-653, Item SPV.0165.4001; Wall Concrete Panel Mechanically Stabilized Earth R-40-654, Item SPV.0165.4002; Wall Concrete Panel Mechanically Stabilized Earth R-45-27, Item SPV.0165.4003; Wall Concrete Panel Mechanically Stabilized Earth R-45-28, Item SPV.0165.4004; Wall Concrete Panel Mechanically Stabilized Earth R-45-29, Item SPV.0165.4005; Wall Concrete Panel Mechanically Stabilized Earth R-45-33, Item SPV.0165.4006; Wall Concrete Panel Mechanically Stabilized Earth R-45-34, Item SPV.0165.4007; Wall Concrete Panel Mechanically Stabilized Earth R-45-44, Item SPV.0165.4008.

A Description

This special provision describes designing, furnishing materials and erecting a permanent earth retention system in accordance to the lines, dimension, elevations and details as shown on the plans and provided in the contract. The design life of the wall and all wall components shall be 75 years minimum.

This special provision describes the quality management program (QMP) for Mechanically Stabilized Earth (MSE) walls. A quality management program is defined as all activities, including process control, inspection, sampling and testing, and necessary adjustments in the process that are related to the construction of the MSE wall, which meets all the requirements of this provision.

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

Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes sampling and testing procedures.

B Materials

B.1 Proprietary Wall Systems

The supplied wall system must be from the department's approved list of Concrete Panel Mechanically Stabilized Earth Wall systems. Proprietary wall systems must conform to the requirements of this specification and be pre-approved for use by the department's Bureau of Structures. The department maintains a list of pre-approved proprietary wall systems. The name of the pre-approved proprietary wall system selected shall be furnished to the engineer within 25 days after the award of contract.

To be eligible for use on this project, a system must have been pre-approved by the Bureau of Structures and added to that list prior to the bid opening date. To receive pre-approval, the retaining wall system must comply with all pertinent requirements of this provision and be prepared in accordance to the requirements of Chapter 14 of the department's LRFD Bridge Manual. Information and assistance with the pre-approval process can be obtained by contacting the Bureau of Structures, Structures Maintenance Section at the following email address: DOTDLStructuresFabrication@dot.wi.gov.

B.2 Design Requirements

It is the responsibility of the contractor to submit a design and supporting documentation as required by this special provision, for review and acceptance by the department, to show the proposed wall design is in compliance with the design specifications. The submittal shall include the following items for review: detailed plans and shop drawings, complete design calculations, explanatory notes, supporting materials, and specifications. The detailed plans and shop drawings shall include all details, dimensions, quantities and cross-sections necessary to construct the walls. Submit shop drawings to the engineer conforming to 105.2 with electronic submittal to the fabrication library under 105.2.2. Certify that shop drawings conform to quality control standards by submitting department form DT2329 with each set of shop drawings. Department review does not relieve the contractor from responsibility for errors or omissions on shop drawings. Submit no later than 60 days from the date of notification to proceed with the project and a minimum of 30 days prior to the date proposed to begin wall construction.

The plans and shop drawings shall be prepared on reproducible sheets 11 inch x 17 inch, including borders. Each sheet shall have a title block in the lower right corner. The title block shall include the WisDOT project identification number and structure number. Design calculations and notes shall be on 8 ½ inch x 11 inch sheets, and shall contain the project identification number, name or designation of the wall, date of preparation, initials of designer and checker, and page number at the top of the page. All plans, shop drawings, and calculations shall be signed, sealed and dated by a professional engineer licensed in the State of Wisconsin.

The design of the wall shall be in compliance with the current American Association of State Highway and Transportation Officials LRFD (AASHTO LRFD) Bridge Design Specifications with latest interim specifications for Mechanically Stabilized Earth Walls, WisDOT's current Standard Specifications for Highway and Structure Construction (standard spec), Chapter 14 of the WisDOT LRFD Bridge Manual and standard engineering design procedures as determined by the Department. Loads, load combinations, load and resistance factors shall be as specified in AASHTO LRFD Section 11. The associated resistance factors shall be defined in accordance with Table 11.5.7-1 in AASHTO LRFD.

Design and construct the walls in accordance to the lines, grades, heights and dimensions shown on the plans, as herein specified, and as directed by the engineer. Where walls or wall sections intersect with an included angle of 130 degrees or less, a vertical corner element separate from the standard panel face shall abut and interact with the opposing standard panels. The corner element shall have ground reinforcement connected specifically to that panel and shall be designed to preclude lateral spread of the intersecting panels. If the wall is installed in front of a bridge abutment or wing, it shall also be designed to resist the applied abutment/bridge lateral forces specified on the plans.

Walls parallel to supporting highway traffic shall be designed for the effects of highway surcharge loading equivalent of 2 feet soil surcharge weight or 240 psf. The design shall also consider the traffic barrier impact where applicable. Walls that do not carry highway traffic shall be designed for a live load surcharge of 100 psf in accordance with Chapter 14 of the WisDOT LRFD Bridge Manual or as stated on the plans.

A maximum value of the angle of internal friction of the wall backfill material used for design shall be assumed to be 30 degrees without a certified report of tests. If a certified report of tests yields an angle of internal friction greater than 30 degrees, the larger test value may be used for design, up to a maximum value of 36 degrees.

An external stability check at critical wall stations showing Capacity Demand Ratios (CDR) for sliding, eccentricity, and bearing checks is performed by the department and are provided on the wall plans.

The design of the wall by the Contractor shall consider the internal and compound stability of the wall mass in accordance with AASHTO LRFD 11.10.6. The internal stability shall include soil reinforcement pullout, soil reinforcement rupture, and panel-reinforcement connection failure at each soil reinforcement level. The design shall be performed using the Simplified Method or Coherent Gravity Method. Calculations for factored stresses and resistances shall be based upon assumed conditions at the end of the design life. Compound stability shall be computed for the applicable strength limits. Sample analyses and hand calculations shall be submitted to verify the output of any software program used. The design

calculations and notes shall clearly indicate the Capacity to Demand Ratios (CDR) for all internal and external stabilities as defined in AASHTO LRFD.

The wall facing shall be designed in accordance with AASHTO LRFD 11.10.2.3. The facing panels shall also be designed to resist compaction stresses that occur during the wall erection. The minimum thickness of the facing panel shall be 5.5 inches. The surface area of a standard single panel cannot exceed 60 square feet. The maximum height of a standard panel shall be 5 feet. The top and bottom panels may exceed 5 foot in height based on site topography subject to the approval by the Structures Design Section. The design of the steel reinforcement within the panels shall be based on one-way bending action. Design the wall panels and joints between panels to accommodate a maximum differential settlement of 1 foot over a 100-foot length, unless the plans indicate other.

The minimum length of soil reinforcement measured from the back face of the wall shall be equal to 0.7 of the wall height, or as shown on the plan. In no case shall this length be less than 8 feet. The soil reinforcement length shall be the same from the bottom to the top of the wall. All soil reinforcement layers shall be connected to facings. The soil reinforcement shall extend a minimum of 3.0 feet beyond the theoretical failure plane in all cases. The maximum vertical spacing of soil reinforcement layers shall be 31 inches. The uppermost layer of the reinforcement shall be located between 6 inches and 18 inches below the bottom of an overlying slab, footing or top of the wall. The upper layers of the soil reinforcement shall also be checked to verify that they have sufficient tensile resistance against traffic barrier impact where applicable.

All soil reinforcement required for the reinforced soil zone shall be connected to the face panels. The reinforcement and the reinforcement/facing connection strength shall be designed to resist maximum factored reinforcement loads in accordance with AASHTO LRFD Section 11.10.6. Facing connection strength shall be defined as the resistance factor times the failure load, or the load at 0.5 inch deformation times 0.9, whichever is less. The nominal long term design strength in steel reinforcement and connections shall be based upon assumed conditions at the end of the design life.

Soil reinforcement shall be prefabricated into single or multiple elements before galvanizing. Soil reinforcement shall be fabricated or designed to avoid piling, drainage structures or other obstacles in the fill without field modifications. Unless approved by the Bureau of Structures cutting or altering of the basic structural section of either the strip or grid at the site is prohibited, a minimum clearance of 3” shall be maintained between any obstruction and reinforcement, and splicing reinforcement is not allowed.

The minimum embedment of the wall shall be 1 foot 6 inches below finished grade, or as given on the plans. All walls shall be provided with a concrete leveling pad. Minimum wall embedment does not include the leveling pad depth. Step the leveling pad to follow the general slope of the ground line. Frost depth shall not be considered in designing the wall for depth of leveling pad.

Wall facing units shall be installed on a leveling pad.

B.3 Wall System Components

Materials furnished for wall system components under this contract shall conform to the requirements of this specification. All documentation related to material and components of the wall systems specified in this subsection shall be submitted to the engineer.

B.3.1 Wall Facing

Wall facing shall consist of modular precast concrete face panels produced by a wet cast process. The concrete panels shall have a minimum strength of 4000 psi at 28 days. The concrete for the panels shall be air entrained, with an air content of 6% +/- 1.5%. All materials for the concrete mixture for the panels shall meet the requirements of standard spec 501. The panel edges shall be configured so as to conceal the joints. The detail shall be a shiplap, tongue and groove or other detail adequate to prevent vandalism or ultraviolet light damage to the backside of the wall joint covering. Joints between panels shall be no more than 0.75 inch. Use full wall height slip joints at points of differential settlement when detailed on the plan. Horizontal joints must be provided with a compressible bearing material to prevent concrete to concrete contact. Panels shall be reinforced using coated high-strength bar steel or welded steel wire fabric conforming to standard spec 505. Welded steel wire fabric shall be epoxy-coated in accordance with ASTM A884 or galvanized in accordance with AASHTO M 111 or ASTM A641. Panel dowels for cast-in-place copings shall be coated high-strength bar steel conforming to standard spec 505. Unless approved by the Bureau of Structures, adhesive anchors are prohibited.

For reinforced cast-in-place concrete cap or coping, use poured concrete Grade A, A-FA, A-S, A-T, A-IS, A-IP or A-IT concrete conforming to standard spec 501 as modified in standard spec 716. Provide QMP

for cast-in-place cap and coping concrete as specified in standard spec 716, Class II Concrete. Use coated high-strength bar steel conforming to standard spec 505.

A minimum of two bearing pads shall be used per panel. The allowable bearing stress shall not exceed 900 psi. The bearing pads shall be preformed EPDM rubber conforming to ASTM D2000, Grade 2, Type A, Class A with a minimum Durometer Hardness of 80, or high- density polyethylene pads with a minimum density of 0.034 lb/in3 in accordance with ASTM D1505.

An 18-inch wide geotextile shall be used on the backface of the wall panels to cover all panel joints. The geotextile shall meet the physical requirements stated in standard spec 645.2.4 for Geotextile, Type DF, Schedule B, except that the grab tensile strength shall be a minimum of 180 pounds in both the machine and cross-machine directions. The geotextile shall be attached with a standard construction adhesive suitable for use on concrete surfaces and cold temperatures. The adhesive shall be applied to the panels, not to the geotextile.

B.3.2 Leveling Pad

Provide an unreinforced cast-in-place concrete leveling pad. Use Grade A, A-FA, A-S, A-T, A-IS, A-IP, or A-IT concrete conforming to standard spec 501 as modified in standard spec 716. Provide QMP for leveling pad concrete as specified in standard spec 716, Class III Concrete.

The minimum width of the leveling pad shall be 12-inches. The minimum thickness of the leveling pad shall be 6-inches.

B.3.3 Backfill

Furnish and place backfill for the wall as shown on the plans and as hereinafter provided.

Place backfill in a zone extending horizontally from the back face of the wall facing to 1 foot minimum beyond the end of the reinforcement and extending vertically from the top of the leveling pad to a minimum of 3 inches above the final reinforcement layer.

Use natural sand or a mixture of sand with gravel, crushed gravel or crushed stone. Do not use foundry sand, bottom ash, blast furnace slag, crushed/recycled concrete, crushed/milled asphaltic concrete or other potentially corrosive material.

Provide material conforming to the following gradation requirements as per AASHTO T27.

Sieve Size	% by Weight Passing
1 inch	100
No. 40	0 – 60
No. 200	0 - 15

The material shall have a liquid limit not greater than 25, as per AASHTO T89, and a plasticity index not greater than 6, as per AASHTO T90. Provide the percent by weight, passing the #4 sieve.

In addition, backfill material shall meet the following requirements.

Test 1	Method	Value	
		(Galvanized)	(Aluminized Type 2)
pH	AASHTO T-289	5.0 – 10.0	5.0 – 9.0
Sulfate content	AASHTO T-290	200 ppm max.	
Chloride content	AASHTO T-291	100 ppm max.	
Electrical Resistivity	AASHTO T-288	3000 ohm-cm min.	1500 ohm-cm min.
Organic Content	AASHTO T-267	1.0% max.	
Angle of Internal Friction	AASHTO T-236[1]	30 degrees min. (At 95.0% of maximum density and optimum moisture, per AASHTO T99, or as modified by C.2.)	

[1] If the amount of P-4 material is greater than 60%, use AASHTO 236 with a standard-size shear box. Test results of this method may allow the use of larger angles of internal friction, up to the maximum allowed by this specification.

If the amount of P-4 material is less than or equal to 60%, two options are available to determine the angle of internal friction. The first method is to perform a fractured faces count, per ASTM D5821, on the R-4 material. If more than 90% of the material is fractured on one face and more than 50% is fractured on two faces, the material meets the specifications and the angle of internal friction can be assumed to be 30 degrees. The second method allows testing all P-1" material, as per AASHTO T-236, with a large shear box. Test results of this second method may allow the use of larger angles of internal friction, up to the maximum allowed by this specification.

Prior to placement of the backfill, obtain and furnish to the engineer a certified report of test results that the backfill material complies with the requirements of this specification. Specify the method used to determine the angle of internal friction. This certified report of test shall be less than 6 months old. Tests will be performed by a certified independent laboratory. In addition, when backfill characteristics and/or sources change, provide a certified report of tests for the new backfill material. Additional certified report of tests are also required. These additional backfill tests may be completed at the time of material production or material placement, with concurrence of the engineer. If this additional testing is completed at the time of material production, complete testing for every 2000 cubic yards of backfill or portion thereof. If this additional testing is completed at the time of material placement, complete testing for every 2000 cubic yards of backfill, or portion thereof, used per wall. For the additional required testing for every 2000 cubic yards of backfill placement, if the characteristic of the backfill and/or the source has not changed then Angle of Internal Friction tests are not included in the additional required testing. All certified reports of test results shall be less than 6 months old and performed by a certified independent laboratory.

B.3.4 Soil Reinforcement

All steel portions of the wall system exposed to earth shall be galvanized. All soil reinforcement and attachment devices shall be carefully inspected to ensure they are true size and free from defects that may impair the strength and durability. Soil reinforcement shall be galvanized or aluminized Type 2. Galvanized soil reinforcement shall be in accordance with AASHTO M 111 or ASTM A641. Aluminized soil reinforcement shall be in accordance with ASTM A463 Aluminized Type 2-100, SS, Grade 50, Class 2. Design of galvanized soil reinforcement shall be in accordance to Section 11.10.6.4.2 of the current AASHTO LRFD Specifications. The design life of steel soil reinforcements shall comply with AASHTO LRFD. Aluminized soil reinforcement shall be limited 16 years of steel protection. Aluminized steel shall only be used on soil reinforcement elements and shall not be used on facing connections or any other steel portion of the wall system. Steel soil reinforcement shall be prefabricated into single or multiple elements before galvanizing.

C Construction

C.1 Excavation and Backfill

Excavation and preparation of the foundation for the MSE wall and the leveling pad shall be in accordance to standard spec 206. The volume of excavation covered is limited to the width of the reinforced mass and to the depth of the leveling pad unless shown or noted otherwise on the plan. At the end of each working day, provide good temporary drainage such that the backfill shall not become contaminated with run-off soil or water if it should rain. Do not stockpile or store materials or large equipment within 10 feet of the back of the wall.

Place backfill materials in the areas as indicated on the plans and as detailed in this specification. Backfill lifts shall be no more than 8-inches in depth, after compaction.

Conduct backfilling operations in such a manner as to prevent damage or misalignment of the wall panels, soil reinforcement, or other wall components. At no expense to the department, correct any such damage or misalignment as directed by the engineer. A field representative of the wall supplier shall be available during wall construction to provide technical assistance to the contractor and the engineer.

Place and compact the MSE backfill to the level of the next higher layer of MSE reinforcement before placing the MSE reinforcement or connecting it to the wall facing. Place and compact material beyond the reinforced soil zone to allow for proper compaction of material within the reinforced zone. The MSE reinforcement shall lay horizontally on top of the most recently placed and compacted layer of MSE backfill.

Do not operate tracked or wheeled equipment on the backfill within 3 feet from the back panels. The engineer may order the removal of any large or heavy equipment that may cause damage or misalignment of the panels.

C.2 Compaction

Compact all backfill behind the wall as specified in standard spec 207.3.6. Compact the backfill to 95.0% of maximum dry density as determined by AASHTO T-99 (modified to compute densities to the nearest 0.1 pcf).

Ensure adequate moisture is present in the backfill during placement and compaction to prevent segregation and to help achieve compaction.

Compaction of backfill within 3 feet of the back face of the wall should be accomplished using lightweight compaction devices. Use of heavy compaction equipment or vehicles should be avoided within 3 feet of the panels. Do not use sheepsfoot or padfoot rollers within the reinforced soil zone.

A minimum of 3 inches of backfill shall be placed over the MSE reinforcement prior to working above the reinforcement.

C.3 Wall Components

C.3.1 General

Erect panel facing and other associated elements according to the wall manufacturer's construction guide. Place and compact the MSE backfill to the level of the next higher layer of MSE reinforcement before placing the MSE reinforcement or connecting it to the wall facing.

The MSE reinforcement shall lay horizontally on the top of the most recently placed and compacted layer of MSE backfill. Bending of MSE reinforcement that result in a kink in the reinforcement shall not be allowed. If skewing of the reinforcement is required due to obstructions in the reinforced fill, the maximum skew angle shall not exceed 15 degrees from the normal position unless a greater angle is shown on the plans. The adequacy of the skewed reinforcement in such a case shall be addressed by supporting calculations.

C.3.2 Leveling Pad

Provide an unreinforced cast-in-place concrete leveling pad as shown on the plans. Vertical tolerances shall not exceed 3/4-inch when measured along a 10-foot straight edge. Allow concrete to set at least 12 hours prior to placing wall facing units.

The bottom row of wall facing units shall be horizontal and 100% of the unit surface shall bear on the leveling pad. Rubber or plastic shims may be used to level the wall facing units at the leveling pad. No more than 2 shims (each 3/16-inch thick) shall be used to level the wall facing.

C.3.3 Steel Layers

Place the steel reinforcement full width in one piece as shown on the plans. No splicing will be allowed. Maintain elements in position during backfilling.

C3.4 Panel Tolerances

As backfill material is placed behind a panel, maintain the panel in its proper inclined position according to the supplier specifications and as approved by the engineer. The supplier shall specify the back batter so that the final position of the wall is vertical. Vertical tolerances and horizontal alignment tolerances shall not exceed ¾-inch when measured along a 10-foot straight edge. The maximum allowable offset in any panel joint shall be ¾-inch. The overall vertical tolerance of the wall (plumbness from top to bottom) shall not exceed ½-inch per 10 feet of wall height. Erect the precast face panels to ensure that they are located within 1 inch from the contract plan offset at any location to ensure proper wall location at the top of the wall. Provide a ¾-inch joint separation between all adjacent face panels to prevent direct concrete-to-concrete contact. Maintain this gap by the use of bearing pads and/or alignment pins. Failure to meet this tolerance shall cause the engineer to require the contractor to disassemble and re-erect the affected portions of the wall. In addition, imperfect molding, honeycombing, cracking or severe chipping of panels shall be cause of panel rejection.

C.4 Quality Management Program

C.4.1 Quality Control Plan

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

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

1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
2. The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication process that will be used, and action time frames.
3. A list of source locations, section and quarter descriptions, for all aggregate materials requiring QC testing.
4. Descriptions of stockpiling and hauling methods.
5. An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.
6. Location of the QC laboratory, retained sample storage, and other documentation.
7. A summary of the locations and calculated quantities to be tested under this provision.
8. A proposed sequencing plan of wall construction operations and random test locations.

C.4.2 Quality Control Personnel

Perform the quality control sampling, testing, and documentation required under this provision using HTCP certified technicians. Have a HTCP Grading Technician I (GRADINGTEC-I); or Assistant Certified Technician, Grading (ACT-GRADING); or Aggregate Technician I (AGGTEC-I); or Assistant Certified Technician, Aggregate (ACT-AGG) present at the each grading site during all wall backfill placement, compaction, and nuclear testing activities. Have a HTCP Nuclear Density Technician I (NUCDENSITYTEC-I) or Assistant Certified Technician, Nuclear Density Gauge Operator (ACT-NUC) perform field density and field moisture content testing.

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

C.4.3 Equipment

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

Furnish nuclear gauges from the department's approved product list at:

http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/default.aspx

Ensure that the nuclear gauge manufacturer or an approved calibration service calibrates the gauge the same calendar year it is used on the project. Retain a copy of the calibration certificate with the gauge.

Conform to AASHTO T310 and CMM 8-15 for density testing and gauge monitoring methods.

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

C.4.4 Documentation

(1) Document all observations, inspection records, and process adjustments daily. Submit test results to the department's project materials coordinator on the same day they become available.

(2) Use forms provided in CMM Chapter 8. Note other information in a permanent field record and as a part of process control documentation enumerated in the contractor's quality control plan. Enter QC data and backfill material certified report results into the applicable materials reporting system (MRS) software within 5 business days after results are available.

(3) Submit final testing records and other documentation to the engineer electronically within 10 business days after all contract-required information becomes available. The engineer may allow submission of scanned copies of hand-written documentation.

C.4.5 Quality Control (QC) Testing

Perform compaction testing on the backfill. Conform to CMM 8-15 for testing and gauge monitoring methods. Conduct testing at a minimum frequency of 1 test per 150 cubic yards of backfill, or major portion thereof in each lift. A minimum of one test for every lift is required. Deliver documentation of all compaction testing results to the engineer at the time of testing.

Perform 1 gradation test every 750 cubic yards of fill and one 5-point Proctor test (or as modified in C.2) every 2,250 cubic yards of fill. Provide the region split samples of both within 72 hours of sampling, at the region laboratory. Test sites shall be selected using ASTM Method D3665. Provide Proctor test results to the engineer within 48 hours of sampling. Provide gradation test results to the engineer within 24 hours of sampling.

C.4.6 Department Testing

C.4.6.1 General

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

C.4.6.2 Quality Verification (QV) Testing

(1) The department will have an HTCP technician, or ACT working under a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified in C.4.2 for contractor testing personnel for each test result being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.

(2) The department will conduct QV tests at the minimum frequency of 30% of the required contractor density, Proctor and gradation tests.

(3) The department will locate density tests and gradation samples randomly, at locations independent of the contractor's QC work. The department will split each Proctor and gradation QV sample, testing half for QV, and retaining the remaining half for 10 business days.

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

(5) The department will assess QV results by comparing to the appropriate specification limits. If QV test results conform to this special provision, the department will take no further action. If density QV test results are nonconforming, the area shall be reworked until the density requirements of this special provision are met. If the gradation test results are nonconforming, standard spec 106.5 will apply. Differing QC and QV nuclear density values of more than 1.5 pcf will be investigated and resolved. QV density tests will be based on the appropriate QC Proctor test results, unless the QV and QC Proctor result difference is greater than 3.0 pcf. Differing QC and QV Proctor values of more than 3.0 pcf will be investigated and resolved.

C.4.6.3 Independent Assurance (IA)

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

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

(2) If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend placement until action is taken. Resolve disputes as specified in C.4.6.4.

C.4.6.4 Dispute Resolution

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

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

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

C.5 Geotechnical Information

Geotechnical data to be used in the design of the wall is given on the wall plan. After completing wall excavation of the entire reinforced soil zone, notify the department and allow the Regional Soils Engineer two working days to review the foundation.

D Measurement

The department will measure Wall Concrete Panel Mechanically Stabilized Earth by the square foot acceptably completed. The department will compute the measured quantity from the theoretical pay limits the contract plans show. The department will make no allowance for wall area constructed above or below the theoretical pay limits. All work beyond the theoretical pay limits is incidental to the cost of work. The department will make no allowance for as-built quantities.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0165.4001	Wall Concrete Panel Mechanically Stabilized Earth R-40-653	SF
SPV.0165.4002	Wall Concrete Panel Mechanically Stabilized Earth R-40-654	SF
SPV.0165.4003	Wall Concrete Panel Mechanically Stabilized Earth R-45-27	SF
SPV.0165.4004	Wall Concrete Panel Mechanically Stabilized Earth R-45-28	SF
SPV.0165.4005	Wall Concrete Panel Mechanically Stabilized Earth R-45-29	SF
SPV.0165.4006	Wall Concrete Panel Mechanically Stabilized Earth R-45-33	SF
SPV.0165.4007	Wall Concrete Panel Mechanically Stabilized Earth R-45-34	SF
SPV.0165.4008	Wall Concrete Panel Mechanically Stabilized Earth R-45-44	SF

Payment is full compensation for supplying a design and shop drawings; preparing the site, including all necessary excavation and disposal of materials; supplying all necessary wall components to produce a functional wall system including cap, copings, leveling pads, leveling pad steps, and shims; constructing the retaining system and providing temporary drainage; providing backfill, backfilling, compacting, developing/completing/documenting the quality management program, and performing compaction testing.

The department will pay separately for parapets, traffic barriers, railings, and other items above the wall cap or coping.

SPV.0165.40XX (20190917)

190. Topsoil Special, Item SPV.0180.0001.

A Description

This special provision section describes furnishing, placing, spreading, and finishing humus-bearing soil, adapted to sustain plant life, commonly known as topsoil, from locations the contractor furnishes beyond the limits of the right-of-way.

This special provision also describes removing topsoil from the sites of proposed roadway excavations and embankments in quantities and depths available and necessary to cover the work slopes. This work also includes reclamation, placing, spreading, and finishing of this topsoil.

B Materials

Furnish material that is relatively free from large roots, sticks, weeds, brush, stones, litter, and waste products.

Furnish material, either obtained offsite, or material obtained within project limits, consisting of loam, sandy loam, silt loam, silty clay loam, or clay loam humus-bearing soils adapted to sustain plant life. Do not use surface soils from ditch bottoms, drained ponds, and eroded areas, or soils which are supporting growth of NR 40 listed plants and noxious weeds or other undesirable vegetation. Ensure that the material conforms to the following:

Topsoil Requirements	Minimum Range	Maximum Range
Material Passing 2.00 mm (#10) Sieve[1]	90%	100%
PH Range	6.0	7.0
Organic Matter[2]	5%	20%
Clay	5%	30%
Silt	10%	70%
Sand and Gravel	10%	70%

[1] See standard spec 625.3.3 for sieve requirements when using either sod or seed mixture 40.

[2] Organic matter determined by loss on ignition test of samples oven dried to constant weight at 212 F (100 C).

C Construction

C.1 Preparing the Roadway for Topsoil

Undercut or underfill all areas designated to receive topsoil to a degree that if covered to the required depth with topsoil the finished work conforms to the required lines, grades, slopes and cross sections the plans and drawings show.

C.2 Processing Topsoil

Mow topsoil procurement areas to a height of approximately 6 inches. Remove litter such as brush, rock, and other materials that will interfere with subsequent vegetation establishment.

Strip off the humus-bearing soil. Take care to minimize removing the underlying sterile soil. Then stockpile the topsoil on the right-of-way or place it directly on the designated areas.

Obtain topsoil from embankment areas outside the roadway foundation only if that additional material is required to cover the slopes and conforms to the requirements of section B in this special provision. Use excess topsoil on the project or dispose of as specified in standard spec 205.3.12.

C.3 Placing Topsoil

After preparing and finishing the areas designated for topsoil to the required lines, grades, slopes and cross section, place and spread the topsoil to a uniform depth as the plans show or the contract requires. If no depth is shown, place and spread the topsoil to a minimum depth of 4 inches in rural areas and a minimum depth of 6 inches in urban areas, or as the engineer designates.

Break down all clods and lumps using appropriate equipment to provide a uniformly textured soil.

Where using either sod or seed mixture 40 ensure that, for the upper 2 inches, 100 percent of the material passes a one-inch sieve and at least 90 percent passes the No. 10 sieve.

Remove rocks, twigs, foreign material, and clods that cannot be broken down. Dress the entire surface to present a uniform appearance. The engineer will not require rolling.

If light sandy soils are covered with heavier clay bearing loam topsoil, then mix or blend the 2 types of soils to a more or less homogeneous mixture by using the appropriate equipment.

D Measurement

The department will not measure Topsoil Special. The department will use pay plan quantity conforming to standard spec 109.1.1.2.

E Payment

The department will pay for plan quantities conforming to standard spec 109.1.1.2 at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0180.0001	Topsoil Special	SY

Payment for Topsoil Special is full compensation for removing, stockpiling, reclaiming, providing, processing, excavating, loading, hauling, and placing this material; and for undercutting excavations, or underfilling embankments necessary to receive this material. The department will make no deductions from the Excavation bid items for quantities of Topsoil Special obtained from cut sections. The department will not measure or pay for volumes of Topsoil Special obtained from the sites of proposed embankments under the Excavation bid items. Additionally, the department will make no allowance, adjustment, or measurement for payment under the Excavation bid items for undercutting cut sections necessary to receive Topsoil Special. The department will not measure and pay for volumes of topsoil placed under the Roadway Embankment bid item.

If an area is damaged by erosion after partial acceptance, the department will pay for restoring topsoil in these areas at a unit price determined by multiplying the contract unit price bid for Topsoil multiplied by 3, the department will pay for restoration under the Restoration Post Acceptance Topsoil administrative item.

The department will not pay for removing topsoil from outside the roadway foundation in embankment areas unless that material is necessary to cover the slopes.

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191. Concrete Pavement 8-Inch Special, Item SPV.0180.0003; 10.5-Inch Special, Item SPV.0180.0004

A. Description

This special provision describes specialized material and construction requirements to use on mainline concrete pavement and shoulders, and freeway entrance and exit ramps.

Conform to standard specs 415, 501, and 715 as modified in this special provision.

B Materials

B.1 Reinforcement

Replace standard spec 415.2.2 with the following:

(1) Furnish tie bars as the plans show and according to standard spec 505.2.6.

(2) Furnish high performance dowel bars for transverse joints in mainline concrete pavement from the WisDOT Approved Products List (APL) located at:

http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/default.aspx

(3) Furnish only one type of high-performance bar for all concrete pavement under the contract.

B.2 Coarse Aggregates

B.2.1 General

Replace standard spec 501.2.7.3.1 (2) with the following:

Use clean, hard, durable crushed limestone with 100 percent fractured surfaces and free of an excess of thin or elongated pieces, frozen lumps, vegetation, deleterious substances or adherent coatings considered injurious.

Use virgin aggregates only.

B.3 Deleterious Substances

Replace standard spec 501.2.7.2.2 (1) and 501.2.7.3.3 with the following:

The quantity of deleterious substances shall not exceed the following percentages:

DELETERIOUS SUBSTANCE	PERCENT BY WEIGHT
Shale	1.0
Coal	1.0
Clay lumps	0.3
Soft fragments	3.0
Any combination of above	3.0
Thin or elongated pieces based on a 3:1 ratio[1]	10.0
Materials passing the No. 200 (75 µm) sieve	1.5
Chert[2]	3.0
Lightweight pieces in concrete not for prestressed members[3]	5.0

[1] As modified by CMM 860.

[2] Material classified lithologically as chert and having a bulk specific gravity (saturated surface-dry basis) of less than 2.45. Determine the percentage of chert by dividing the weight of chert in the sample retained on a 3/8-inch (9.5 mm) sieve by the weight of the total sample.

[3] Material having a saturated surface-dry bulk specific gravity of less than 2.45, tested according to AASHTO T113. Determine the percentage of lightweight pieces by dividing the weight of lightweight pieces in the sample retained on the 3/8-inch sieve by the weight of the total sample.

B.4 Physical Properties

Replace standard specs 501.2.7.3.2 (1) and (2) with the following:

(1) The percent LA wear shall not exceed 30 percent.

(2) The department will ensure that soundness testing conforms to AASHTO T 104, using five cycles in sodium sulfate solution on aggregate retained on the No. 4 (4.75 mm) sieve. The weighted loss shall not exceed 6 percent.

The department will ensure that freeze-thaw soundness testing confirms to AASHTO T 103. The weighted freeze-thaw average loss shall not exceed 15 percent.

B.5 Joint Filler

Replace standard specs 415.2.6 with the following:

(1) Furnish a silane sealer from the Department's approved product list for Concrete Protective Surface Treatments.

C Construction

C.1 Jointing

Replace standard spec 415.3.7.1 (2) with the following:

For all intersections, ramps and mainline pavement; plan and locate all points necessary to establish the horizontal position of the transverse and longitudinal joints in the concrete to prevent uncontrolled cracking. Submit a joint layout design plan to the engineer at least 7 calendar days before paving. Do not layout joints until the engineer has reviewed the joint layout design. Mark the location of the concrete joints in the field prior to or after paving. Follow the plan details for joints in the concrete, making adjustments as required to fit field conditions.

Supplement standard spec 415.3.7.1 with the following:

(9) Remove all saw slurry from sawed joints and allow to dry thoroughly before application of silane joint sealer.

(10) Apply silane joint sealer to all sawed surfaces of the transverse and longitudinal joints unless directed otherwise by the engineer. Apply the silane joint sealer directly to the interior of the sawed joint. Do not use a broadcast spray method of application.

(11) Apply silane joint sealer per manufacturers specifications

(12) Apply silane joint sealer within one month of concrete placement.

C.2 Surface Finishing

Replace standard spec 415.3.8.3.1 with the following:

(1) Tine freshly placed pavement as soon as it is practical after floating.

(2) Tine with a self-propelled tining machine. Where using a tining machine is not practical, tine by hand. Produce uniformly deep grooves approximately 1/8 to 3/16 inch (3 mm to 5 mm) deep.

(3) Construct a finished surface free of tining defects. Complete before tining tears or unduly roughens the concrete

(4) Tine surface longitudinally as specified in standard spec 415.3.8.3.2.

C.3 Curing Concrete

Replace standard spec 415.3.12.1 with the following:

(1) Maintain adequate moisture throughout the concrete mass to support hydration until the concrete develops sufficient strength to open it to service. Cure all concrete by impervious coating as specified in standard spec 415.3.12.2 within 75 minutes from the time concrete is discharged from the truck. Use PAM except, use curing compound conforming to 501.2.8 on pavement will get an overlay under the contract or as directed by the engineer. The liquid curing compound shall have a color equal to or lighter than Gardner Color Standard No.2 when tested in accordance with ASTM C 1315.8.7.6 Yellowing Resistance.

(2) If the concrete is not cured as specified in the subsection, the engineer may suspend concrete placement operations.

C.4 Extended Delivery Time

Delete standard spec 501.3.2.4.3.3.

C.5 Ready-Mixed Concrete

Replace standard spec 501.3.5.1 with the following:

Use central-mixed concrete for all work under this special provision. Central-mixed concrete is mixed in a stationary mixer and transported to the point of delivery with or without mechanical agitation in the transporting vehicle.

C.6 Hot Weather Concreting

The contractor is responsible for the quality of the concrete pavement placed in hot weather.

Take the following steps to ensure that the concrete will cure during hot weather conditions. Submit a written temperature control plan at or before the pre-pour meeting. In that plan, outline the actions to control concrete temperature if the concrete temperature at the point of placement exceeds 80° F (27° C). Do not place concrete without the engineer's written acceptance of that temperature control plan. Perform the work as outlined in the temperature control plan.

If the concrete temperature at the point of placement exceeds 90° F (32° C), do not place concrete for items covered in this special provision.

Notify the engineer whenever conditions exist that might cause the temperature at the point of placement to exceed 80° F (27° C). If project information is not available, obtain information from similar mixes placed for other nearby work.

C.7 Lots by Lane-Feet

Add the following to standard spec 715.3.1.2.2 as paragraph three:

(3) A sublot is 350 linear feet for 3-lane paving width or 2-lane plus shoulder.

C.8 Strength Evaluation

Replace 715.3.2.2.1 with the following:

715.3.2.2.1 Pavement

(1) If a sublot flexural strength is less than 550 psi, the department may direct the contractor to core that sublot to determine its structural adequacy and whether to direct removal. Cut and test cores according to AASHTO T24 as and where the engineer directs. Have an HTCP-certified PCC technician I perform or observe the coring.

(2) The sublot pavement is conforming if the compressive strengths of all cores from the sublot are 3000 psi or greater or the engineer does not require coring.

(3) The sublot pavement is nonconforming if the compressive strengths of any core from the sublot is less than 3000 psi. The department may direct removal and replacement or otherwise determine the final disposition of nonconforming material as specified in 106.5.

D (Vacant)

E Payment

Replace standard spec 415.5.1(1) with the following:

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0180.0003	Concrete Pavement 8-Inch Special	SY
SPV.0180.0004	Concrete Pavement 10.5-Inch Special	SY

Replace standard spec 415.5.1(2) with the following:

(2) Payment for the Concrete Pavement bid items is full compensation for providing pavement; for preparing the foundation, unless provided otherwise; for joint layout and joint layout design, for placing thickness plates; and for thickness coring and filling core holes as required under 415.3.16.4. Payment also includes providing tie bars and dowel bars within concrete placed under the contract. The department will pay separately for tie bars and dowel bars used to connect the work to concrete not placed under the contract under the Drilled Tie Bars and Drilled Dowel Bars bid items as specified in 416.5. The department will not pay for removal and replacement of pavement not meeting the surface smoothness tolerances specified in 415.3.10.

Payment also includes sealing joints with silane sealer, sawing of concrete pavement, and any additive or action taken to control the temperature of concrete.

192. Asphaltic Material Binder, Item SPV.0180.0106.

A Description

This special provision describes furnishing and applying an asphaltic material binder to aggregate, at locations shown in the plans, to control erosion and prevent the growth of vegetation.

B Materials

B.1 General

Furnish emulsified asphalt, type RS 1 or RS 2 conforming to AASHTO M140, or type CRS 1 or CRS 2 conforming to AASHTO M208 for the asphaltic material.

Furnish evidence, to the satisfaction of the engineer, that the proposed product has been successfully used in a similar application.

C Construction

C.1 Application

Apply the Asphaltic Material binder uniformly over the dry surface at a rate just sufficient to ensure penetration and binding of the particles in the upper 2 inches of the aggregate blanket in accordance to the manufacturer's recommended rate and procedures. Avoid excessive application of asphaltic material binder and exercise care to prevent material run-off. Protect the surface of adjacent structures, barriers, and pavement to prevent splattering or discoloration by asphaltic material.

Protect asphaltic material binder from excessive dust exposure for the first 4 hours of curing.

C.2 Test Section

Prepare a test section utilizing aggregate and asphaltic material binder so the engineer will be able to assess the adequacy of the product and the application to yield the desired results. Test section to be a minimum of 3-feet x 3-feet. Notify the engineer no less than 24 hours in advance of preparing the test section to allow him time to arrange for witnessing the asphaltic material binder application and mixing with the aggregate. Cure test section according to product manufacturer's requirements before the engineer will accept the product for use.

If the test section is not accepted, prepare another test section and repeat the process. Repeat this procedure until the engineer accepts the test section. Use the same asphaltic material binder means and methods when installing the product that were used in preparing the accepted test section.

D Measurement

The department will measure Asphaltic Material Binder by the square yard in place, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0180.0106	Asphaltic Material Binder	SY

Payment is full compensation for furnishing, mixing and applying the asphaltic material binder to the aggregate; for cleaning any splatter of asphaltic material binder from adjacent structures, barriers, and pavement; and for making and disposing of test sections.

193. HMA Longitudinal Joint Repair, Item SPV.0195.0001.

A Description

This special provision describes providing longitudinal joint repairs in HMA pavements. Conform to standard spec 204, 315, 455, and 460, and as follows.

B Materials

Furnish asphaltic mixture as specified for type 3 HT 58-28 H under standard spec 460.2.

Provide tack coat conforming to standard spec 455.2.5.

C Construction

C.1 General

Remove an area 1.5 to 3 feet wide and at least to the full depth of asphaltic pavement; the engineer will determine the repair length. Remove damaged concrete pavement discovered below the asphalt during this removal, and replace with asphalt mixture.

Clean the existing exposed concrete pavement surface before placing tack coat.

Apply asphaltic materials the same day the joint is removed to prevent the entrance of water. Do not apply if weather or surface conditions are unfavorable or before impending rains.

Conform to standard spec 315.3.1 for placement of the HMA pavement.

Dispose of removed pavement and other waste materials outside of the project limits unless the engineer allows otherwise.

C.2 Maintenance

Maintain repaired joints during the contract. Remove and replace additional tack coat and HMA pavement if the engineer directs.

D Measurement

The department will measure HMA Longitudinal Joint Repair by the ton acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0195.0001	HMA Longitudinal Joint Repair	Ton

Payment for the HMA Longitudinal Joint Repair item is full compensation for providing the joint repair including removing the existing asphaltic surface and damaged concrete; for tack coat and asphaltic pavement mixture; and for maintaining the repair during the contract.

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194. HMA Transverse Joint Repair, Item SPV.0195.0002.

A Description

This special provision describes providing transverse joint repairs in HMA pavements at bridges. Conform to standard spec 204, 315, 455, and 460, and as follows.

B Materials

Furnish asphaltic mixture as specified for type 3 MT 58-28 S under standard spec 460.2. Provide tack coat conforming to standard spec 455.2.5.

C Construction

C.1 General

Remove an area two feet wide and at least to the full depth of asphaltic pavement; the engineer will determine the repair length. Remove damaged concrete pavement discovered below the asphalt during this removal, and replace with asphalt mixture.

Clean the existing exposed concrete pavement surface before placing tack coat.

Apply asphaltic materials the same day the joint is removed to prevent the entrance of water. Do not apply if weather or surface conditions are unfavorable or before impending rains.

Conform to standard spec 315.3.1 for placement of the HMA pavement

Dispose of removed pavement and other waste materials outside of the project limits unless the engineer allows otherwise.

C.2 Maintenance

Maintain repaired joints during the contract. Remove and replace additional tack coat and HMA pavement if the engineer directs.

D Measurement

The department will measure HMA Transverse Joint Repair by the ton, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0195.0002	HMA Transverse Joint Repair	Ton

Payment for the HMA Transverse Joint Repair item is full compensation for providing the joint repair including removing the existing asphaltic surface and damaged concrete; for tack coat and asphaltic pavement mixture; and for maintaining the repair during the contract.

195. Excavation, Hauling, and Disposal of Creosote Contaminated Soil, Item SPV.0195.4000.

A Description

A.1 General

This special provision describes excavating, stockpiling for testing, loading, hauling, and disposing of creosote contaminated soil at a landfill. The closest landfills to the project would be the following:

Waste Management Orchard Ridge Landfill

N96W13503 County Line Road

Menomonee Falls, WI 53051

(262) 532-6200

GFL Environmental

W124S10629 South 124th Street

Muskego, WI 53150

(414) 529-1360

Perform this work in accordance to standard spec 205 and with pertinent parts of Chapters NR 700-754 of the Wisconsin Administrative Code, as supplemented herein. Per NR 718.07, a solid waste collection and transportation service-operating license is required under NR 502.06 for each vehicle used to transport contaminated soil.

A.2 Notice to the Contractor – Contaminated Soil Location(s)

The department assumes that soil in the immediate vicinity of pre-existing creosote treated wooden bridge piles is contaminated due to exposure to residual wood preservatives. Due to structural impediments, representative analytical testing of this soil is not practical prior to bridge demolition and subsequent structure excavation. As such, the soil located in the following locations and as shown of the plans will require temporary stockpiling within the right-of-way and analytical testing for landfill acceptance:

B-45-17 (Port Washington Rd. over IH 43)

1. At existing east abutment – Approximately Sta. 343PNCN+23 to Sta. 344PNCN+16, from approximately 27 feet LT of reference line to 48 feet RT of reference line, approximate upper elev. 680.3, approximate lower elev. varies from 665.7 to 677.1. See B-45-102 plans for representation of anticipated contamination limits. Soil at this location is contaminated with residual creosote-based wood preservatives. Approximately 453 cubic yards (approximately 769 tons at an estimated 1.7 tons per cubic yard) of contaminated soil will be excavated from this location.

2. At existing west abutment – Approximately Sta. 346PNCN+10 to Sta. 347PNCN+02, from approximately 35 feet LT of reference line to 40 feet RT of reference line, approximate upper elev. 676.0, approximate lower elev. varies from 657.6.5 to 671.3. See B-45-102 plans for representation of anticipated contamination limits. Soil at this location is contaminated with residual creosote-based wood preservatives. Approximately 670 cubic yards (approximately 1138 tons at an estimated 1.7 tons per cubic yard) of contaminated soil will be excavated from this location.

For further information regarding the handling and disposal of this contaminated soil material please contact:

Name:	Andrew Malsom
Address:	141 NW Barstow St. Waukesha, WI 53187
Phone:	(262) 548-6705
e-mail:	Andrew.Malsom@dot.wi.gov

A.3 Coordination

Coordinate work under this contract with the environment consultant:

Consultant:	TRC Environmental Corporation
Address:	150 N. Patrick Blvd. Suite 180, Brookfield, WI 53045
Contact:	Bryan Bergmann, P.G.
Phone:	262-901-2126 (office), 262-227-9210 (cell)
Fax:	262-879-1220
E-mail:	bbergmann@trcsolutions.com

The role of the environmental consultant will be limited to:

1. Determining the location and limits of contaminated soil as expressed on the project plans and described in the this special provisions~~;~~
2. Providing field support during excavation activities;
3. Coordinating lab testing for landfill acceptance;
4. Identifying contaminated soils to be hauled to the landfill;
5. Obtaining landfill permitting and documentation of proper landfill disposal; and
6. Documenting that activities associated with management of contaminated soil are in conformance with the contaminated soil management methods for this project as specified herein.

Provide at least a 14-calendar day notice of the preconstruction conference date to the environmental consultant. At the preconstruction conference, provide a schedule for all excavation activities in the areas of treated wood pilings to the environmental consultant. Also notify the environmental consultant at least three calendar days prior to commencement of excavation activities in each of the contaminated areas.

Coordinate with the environmental consultant to ensure that the environmental consultant is present during excavation activities in the areas of treated wood pilings. Perform excavation work in each of the contaminated areas on a continuous basis until excavation work is completed.

Identify the landfill that will be used for disposal of contaminated soils, and provide this information to the environmental consultant no later than 30 calendar days prior to commencement of excavation activities in the contaminated areas or at the preconstruction conference, whichever comes first. The environmental consultant will be responsible for obtaining the necessary approvals for disposal. Do not transport contaminated soil offsite without prior approval from the environmental consultant.

A.4 Health and Safety Requirements

Add the following to standard spec 107.1:

During excavation activities, expect to encounter soil contaminated with Polycyclic aromatic hydrocarbons (PAHs) and Semi-volatile organic compounds (SVOCs). Site workers taking part in activities that will result in the reasonable probability of exposure to safety and health hazards associated with hazardous materials shall have completed health and safety training that meets the Occupational Safety and Health Administration (OSHA) requirements for Hazardous Waste Operations and Emergency Response (HAZWOPER), as provided in 29 CFR 1910.120.

Prepare a site-specific Health and Safety Plan, and develop, delineate and enforce the health and safety exclusion zones for each contaminated site location as required by 29 CFR 1910.120. Submit the site-specific health and safety plan and written documentation of up-to-date OSHA training to the engineer prior to the start of work.

B (Vacant)

C Construction

Add the following to standard spec 205.3:

Control operations in the contaminated areas to minimize the quantity of contaminated soil excavated.

Excavate the contaminated soil in the areas shown in the plan. Stockpile the material within the project footprint on DOT right-of-way, pending lab results and landfill acceptance. Construct and maintain a temporary stockpile of the material in accordance with NR 718.05(3), including, but not limited to, placement of the contaminated soil/fill material on an impervious surface and covering the stockpile with impervious material to prevent infiltration of precipitation.

The environmental consultant will coordinate analytical testing of contaminated soil for landfill acceptance. (5) business days should be allowed for the laboratory to conduct this testing and issue results. In the event the laboratory analytical test results do not indicate contamination is present, the

stockpiled material may be considered common excavation and can be handled in accordance with the erosion control implementation plan (ECIP).

Once landfill acceptance permitting is complete, directly load and haul soils to the landfill as directed by the environmental consultant. Use loading and hauling practices that are appropriate to prevent any spills or releases of contaminated soils or residues. Prior to transport, sufficiently dewater soils designated for off-site bioremediation so as not to contain free liquids. Verify that the vehicles used to transport contaminated material are licensed for such activity in accordance with applicable state and federal regulations.

When material is encountered outside the above-identified limits of assumed contamination that appears to have been impacted with petroleum or chemical products, or when other obvious potentially contaminated materials are encountered, or material exhibits characteristics of industrial-type wastes, such as fly ash, foundry sand, and cinders, or when underground storage tanks are encountered, suspend excavation in that area and notify the engineer and the environmental consultant.

Groundwater may be present within the construction limits. Water generated during dewatering operations (if necessary) is expected to be permitted to discharge to the surface except in the contaminated areas. Contaminated groundwater generated from dewatering activities within the contaminated areas may exceed the surface water discharge limits for petroleum compounds specified in the DNR's "General Permit to Discharge under the Wisconsin Pollutant Discharge Elimination System" for "Contaminated Groundwater from Remedial Action Operations" (WPDES Permit No. WI-0046566-5), Table 3.1.

If dewatering is required in an area of observed contamination, water generated from dewatering activities may contain PAHs, SVOCs, and Metals. Such water may, with approval of City of Mequon and the Milwaukee Metropolitan Sewerage District (MMSD), be discharged to the respective sanitary system as follows:

1. Meet all applicable requirements of the MMSD including the control of suspended solids. Perform all necessary monitoring to document compliance with MMSD's requirements. Furnish, install, operate, maintain, disassemble, and remove treatment equipment necessary to comply with MMSD's requirements.

2. Ensure continuous dewatering and excavation safety at all times. Provide, operate, and maintain adequate pumping equipment and drainage and disposal facilities.

3. Notify the engineer of any dewatering activities, and obtain any permits necessary to discharge water. Provide copies of such permits to the engineer. Meet any requirements and pay any costs for obtaining and complying with such permit use. Follow all applicable legislative statutes, judiciary decisions, and regulations of the State of Wisconsin.

Costs for this dewatering and disposing of contaminated water are incidental to the contract.

Employ construction methods and techniques in a manner that will minimize the need for dewatering, and if dewatering is required, minimize the volume of water generated. Take measures to limit groundwater, surface water, and precipitation from entering and exiting excavations in the areas of contamination. Such measures, which may include berming, ditching, or other means, shall be maintained until construction of utilities in the areas of contamination are complete.

Ensure continuous dewatering and excavation safety at all times. Provide, operate, and maintain adequate pumping equipment and drainage and disposal facilities. Notify the engineer of any dewatering activities, and obtain any permits necessary to discharge water. Provide copies of such permits to the engineer. Meet any requirements and pay any costs for obtaining and complying with such permit use. Follow all applicable legislative statues, judiciary decisions, and regulations of the State of Wisconsin.

D Measurement

The department will measure Excavation, Hauling, and Disposal of Creosote Contaminated Soil in tons of contaminated soil, accepted by the landfill as documented by weight tickets generated by the landfill.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0195.4000	Excavation, Hauling, and Disposal of Creosote Contaminated Soil	Ton

Payment is full compensation for excavating, stockpiling (including contractor-provided plastic sheeting to cover as well as place the material on), loading, and hauling the contaminated soil to a landfill; obtaining solid waste collection and transportation service operating licenses; and dewatering of soils prior to transport, if necessary.