Special Provisions

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STSP'S Revised November 21, 2019

SPECIAL PROVISIONS

1. General.

Perform the work under this construction contract for Project 1146-75-71. STH 76 – New London, Wi Central RR – CTH JJ, Outagamie 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, 2019 Edition, as published by the department, and these special provisions.

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

100-005 (20191121)

2. Scope of Work.

The work under this contract shall consist of grading, base, landfill waste removal, culvert pipe, storm sewer, HMA pavement, concrete curb and gutter, pavement marking, finishing, landscaping; structures B-44-289/290 (STH 15 over WCL RR), B-44-291/292 (STH 15 over CTH M), B-44-293/294 (STH 15 over Nash St., B-44-295/296 (STH 15 over Black Otter Creek); retaining walls R-44-17 (along WCL RR), R-44-18/19 (along CTH M), R-44-20/21 (along Nash St.); and all incidental items necessary to complete the work as shown on the plans and included in the proposal and contract.104-005 (20090901)

3. Prosecution and Progress.

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

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

For the Black Otter Creek Stream Re-alignment Place temporary shoring on the west side of the proposed channel. Construct the new channel alignment and place rip rap in the new channel. The contractor will then have the option to either build the eastern bridge piers and abutments and place all permanent erosion control OR protect the new stream with temporary means and seed the adjacent disturbed area with temporary seed and erosion control mat. Removal of the downstream shoring will occur first to allow the new channel to fill with water so the creek can stabilize prior to opening the upstream end. Once the creek is stabilized, the upstream shoring can then be removed. Place shoring to protect the newly built creek channel and complete the removal and fill of the old creek channel on the west side and remove the private structure. Once marsh excavation is completed, the contractor will have the option to either build the western bridge piers and abutments and place all permanent erosion control OR protect the new creek bed with temporary means and seed the adjacent disturbed area with temporary seed and erosion control mat.

Topsoil placement and final restoration within STA 339+00 – 341+00 shall be completed prior to September 1, 2021.

4. Traffic.

STH 15 will remain open to traffic during this contract. Maintain pedestrian access at all times.

Maintain access at all times to abutting property owners and businesses located along the project. Do not close or remove from service any residential or commercial driveway prior to constructing temporary access for that driveway.

Keep appropriate emergency officials informed of routes to provide emergency services.

Stage 1

All side roads shall be kept open to through traffic except as follows: For the purpose of setting girders, the contractor may stop CTH M and Nash Street traffic for periods not to exceed 30 minutes. Upon setting a girder, the contractor must reopen the roadway to traffic before the successive girders are set.

The contractor shall provide local law enforcement a minimum of 48 hours prior notice prior to any proposed traffic stoppages.

The existing snowmobile trail at STA 448+00 will remain open during the winter of 2021. The contractor shall obtain written consent from the engineer prior to starting construction activities that would impact this trail.

Stage 2

Close CTH MM for a maximum of 40 working days. Use short term single lane closures with Flaggers on CTH M to construct the intersection with CTH MM. Nash Street shall not be closured during the time CTH MM is closed. All other side roads remain open.

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)

Portable Changeable Message Signs – Construction Start

Post PCMS seven calendar days prior to the start of the construction to advise traffic about planned work.

Portable Changeable Message Signs – Message Prior Approval

After coordinating with the department construction field staff, notify the Northeast Region Traffic Section at (920) 366-8033 (secondary contact number is (920) 360-3107) three business days prior to deploying or changing a message on a PCMS to obtain approval of the proposed message. The Northeast Traffic Unit will review the proposed message and either approve the message or make necessary changes.

5. Holiday Work Restrictions.

Do not perform work on, nor haul materials of any kind along or across any portion of the highway carrying STH 15 traffic, and entirely clear the traveled way and shoulders of such portions of the highway of equipment, barricades, signs, lights, and any other material that might impede the free flow of traffic during the following holiday periods:

- From noon Friday, 09/03/2021 to 6:00 AM Tuesday, 09/07/2021;
- From noon Friday, 11/19/2021 to 6:00 AM Monday, 11/29/2021
- From noon Friday, 12/24/2021 to 6:00 AM Monday, 01/02/2022.
- From noon Friday, 04/15/2022 to 6:00 AM Monday, 04/18/2022
- From noon Friday, 05/27/2022 to 6:00 AM Tuesday, 05/31/2022
- From noon Friday, 07/01/2022 to 6:00 AM Tuesday, 07/05/2022
- From noon Friday, 09/02/2022 to 6:00 AM Tuesday, 09/06/2022

stp-107-005 (20050502)

6. Utilities.

This contract comes under the provision of Administrative Rule Trans 220.

stp-107-065 (20080501)

7. Other Contracts

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

Project 1146-75-72, WI Central RR – Lily of the Valley Dr, Outagamie County, Wisconsin is under a department contract. Let November 2021, expand WIS 15 to 4 lanes from WCL railroad to Lily of the Valley Drive. The work under contract 1146-75-72 is not expected to inhibit any construction under this contract.

Project 1146-75-78, CTH JJ – Wi Central RR, Outagamie County, Wisconsin is under a department contract. Let July 2022, expands WIS 15 to 4 lanes from CTH JJ to WCL. The work under 1146-75-78 is not expected to inhibit any construction under this contract.

8. Railroad Insurance and Coordination (Jared).

A Description

Enter A1 or A2 and press F3

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. Enter B1, B2 or B3 and press F3

A.2 Work by Railroad

The railroad will perform the work described in this section, except for work described in other special provisions and will be accomplished without cost to the contractor. Enter a description of the work or write "None"

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

Contact Enter one of the following: WSOR; CN; UPR, BNSF; CP(SOO) then press F3

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

A.4 Temporary Grade Crossing

Enter C1 or C2 and press F3

A.5 Train Operation

Approximately Enter the number of trains passenger trains and Enter the number of trains through freight trains operate ***Choose an item.*** through the construction site. Passenger trains operate at up to Enter the speed of the trains mph. Through freight trains operate at up to Enter the speed of the trains mph. Enter sentence about switching movements

A.6 Rail Security Awareness and Contractor Orientation

Enter CNSAFETY or Others then press F3

9. Environmental Protection and Erosion Control.

Fish Spawning

There shall be no instream disturbance of the Wolf River(STA 269+80), Black Otter Creek(STA 348+00)or the Black Otter Lake(STA 439+50 and 461+50) as a result of construction activity under or for this contract, from March 1st to June 15th both dates inclusive, in order to avoid adverse impacts upon the spawning of various fish species.

Any change to this limitation will require submitting a written request by the contractor to the engineer, subsequent review and concurrence by the Department of Natural Resources in the request, and final approval by the engineer. The approval will include all conditions to the request as mutually agreed upon by WisDOT and DNR.

Fish (20090901)

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 William Bertrand at (920) 360-3124.

107-054 (20080901)

Environmental Protection, Aquatic Exotic Species Control.

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

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

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

1. Prior to leaving the contaminated site, wash machinery and ensure that the machinery is free of all soil and other substances that could possibly contain exotic invasive species;
2. Drain all water from boats, trailers, bilges, live wells, coolers, bait buckets, engine compartments, and any other area where water may be trapped;
3. Inspect boat hulls, propellers, trailers and other surfaces. Scrape off any attached mussels, remove any aquatic plant materials (fragments, stems, leaves, seeds, or roots), and dispose of removed mussels and plant materials in a garbage can prior to leaving the area or invested waters; and
4. Disinfect your boat, equipment and gear by either:
    a. Washing with ~212º F water (steam clean), or
    b. Drying thoroughly for five days after cleaning with soap and water and/or high pressure water, or
    c. Disinfecting with either 200 ppm (0.5 oz per gallon or 1 Tablespoon per gallon) Chlorine for 10-minute contact time or 1:100 solution (38 grams per gallon) of Virkon Aquatic for 20- to 30-minute contact time. Note: Virkon is not registered to kill zebra mussel veligers nor invertebrates like spiny water flea. Therefore this disinfect should be used in conjunction with a hot water (>104º F) application.

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

stp-107-055 (20130615)

Construction Over or Adjacent to Navigable Waters.

Supplement standard spec 107.19 with the following:

Black Otter Creek is classified as a navigable waterway.

107-060 (20040415)

Erosion Control Structures.

Within seven calendar days after the commencement of work on the bridge superstructure, place all permanent erosion control devices, including riprap, erosion mat, ditch checks, seed, fertilizer, mulch, soil stabilizer, or any other item required by the contract or deemed necessary by the engineer. These devices shall be in place in the area under the bridge and on both sides of the roadway, from the waterway to a point 100-feet behind the backwall of the abutment. Within said limits, place these devices 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 directed by the engineer. Prior to initial construction operations, place turbidity barriers, silt screens, and other temporary erosion control measures as shown on the plans, and remove them after the permanent erosion control devices are in place unless directed otherwise by the engineer.

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.

107-070 (20030820)

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.

Environmental Protection, Blanding's Turtle.

Blanding's turtles, a state special concerned species, are known to inhabit the area, particularly where sandy soils occur. It is reasonable to assume that Blanding's turtles may be present at or near the project site during construction. If project construction starts in the spring, protect the perimeter of the areas to be disturbed with properly trenched-in silt fence prior to May 1 to discourage turtles from entering the work area. If the construction area cannot be silt-fenced by May 1, install the silt fence prior to construction activities. Also, survey the area behind the silt fence and remove all turtles confined within the project area prior to any site disturbance. Complete the survey and removal of turtles from construction areas periodically throughout the construction period.

(NER11-0127)

Threatened & Endangered Resources, Red-Shouldered Hawk (Buteo Lineatus – State Threatened).

0.9 miles north of the bypass segment. The forested wetlands north of the Grand View Golf Club appear to have potentially suitable habitat for the Red-shouldered Hawk (RSH), as it connects with the habitat where the hawk is known to occur. Clearing and grubbing between STAs 346'EB'+00 – 372'EB'+00 shall be done outside of the nesting season of April 1 through July 31 both days inclusive.

Environmental Protection, By-Pass Pumping

Supplement subsection 107.18 of the standard specifications as follows:

If by-pass pumping is required, the means and methods proposed to be used during construction shall be submitted for approval as part of the Erosion Control Implementation Plan for each location it is required. The submittal shall include how the intake will be managed to not cause an increase in the background level turbidity during pumping; equipment pumping rate capabilities; discharge energy dissipation; and erosion controls. For by-pass pumping that will extend beyond one working day, the submittal should also include how the work zone will be managed and protected should the pump fail; be shut down due to unacceptable water quality; or storm water flows exceed the pumping rate of equipment. After setup of the approved by-pass pumping operation, the contractor shall demonstrate that the means and methods will pump the water at an acceptable water quality prior to starting work that necessitates the by-pass pumping. The cost of all work and materials associated with by-pass pumping is incidental to the bid items the work is associated with. Erosion control devices beyond the discharge energy dissipation point will be paid for at the contract unit prices for the items that are included in the plan.

(NER 11-0711)

Oak Wilt

To prevent the spread of oak wilt, no clearing, grubbing or cutting of oak trees and saplings is allowed between April 1 and September 30, both dates inclusive. The department has removed known locations of oak trees and saplings within the project area prior to the project. This mapping may not be all inclusive. These restrictions apply to any oak tree or sapling in the project work area.

Environmental Protection, Non-Aquatic Invasive Species Plants

Phragmites, invasive plant species, are known to exist within the project limits and in areas of ground disturbance or excavation work as shown in the plans. All Topsoil that will be excavated or salvaged as part of the work within the contract shall be salvaged and used as topsoil within the project limits, placed in designated areas if shown in the plan, placed as fill per Section 205.3.12 of the Standard Specifications or deposited at an engineer approved waste site. All waste sites are subject to review and approval by the department and shall be suitable for the waste of material containing invasive species to control their spread in compliance with NR 40. Waste sites suitable for invasive species would be areas that would prevent or control the growth and spread of the plant by burying, mowing or other control practices. The contractor shall submit his method for managing topsoil on this project for approval as part of the Erosion Control Implementation Plan. Prior to moving equipment out of infested area clean soils, seeds, plant parts, or invertebrates from exterior surfaces. Use most effective method that is practical by the following methods: Brush, broom, or other hand tools; high pressure air; steam cleaning; or portable wash station that contains runoff from washing equipment. Do not clean equipment, vehicles or trailers in or near waterways as it may promote the spread of invasive species downstream.

(NER17-0806)

Erosion Control – Permanent Restoration

Add the following paragraph to standard spec 107.20:

> Topsoil shall be placed and permanently restored as the height of the fills progresses. Areas of the project with fills heights less than 10 feet shall be topsoiled and restored once they reach the subgrade shoulder point height including out to the slope intercepts. Areas of the project with fill heights greater than 10 feet shall be topsoiled and permanent restoration placed once the fill height

reaches 10 feet including out to the slope intercept. The remaining portion of the fill shall be topsoiled and restored once it reaches the subgrade shoulder point.

Topsoil shall be placed and permanently restored in cut sections so that the preceding upper bench section (20' maximum depth) is restored prior to further excavation on the successive lower bench.

The contractor shall show timing of these EC mobilizations as part of proposed schedule in the ECIP. All slopes from the subgrade shoulder point to the slope intercept shall be permanently restored at the time the project is shut down for the winter.

Environmental Protection, Emerald Ash Borer

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

Ash trees include the following species:

Green ash (F. pennsylvanica) is found throughout the state, but is most common in southern Wisconsin. It may form pure stands or grow in association with black ash, red maple, swamp white oak, and elm. It grows as an associate in upland hardwood stands, but is most common in and around stream banks, floodplains, and swamps.

Black ash (F. nigra) is distributed over the entire state but is most frequently found in northern Wisconsin. It is most common in swamps, but is also found in other wet forest types.

Blue ash (F. quadrangulata) is a threatened species that is currently found only at a few sites in Waukesha county. The species is at the edge of its range in Wisconsin, but is common in states farther south. The species is not of commercial importance.

Mountain ash (Sorbus Americana and S. decora) is not a true ash and is not susceptible to EAB infestation.

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

ATCP 21.17 Emerald ash borer; import controls and quarantine.

IMPORTING OR MOVING REGULATED ITEMS FROM INFESTED AREAS; PROHIBITION. Except as provided in sub. (3), no person may do any of the following:

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

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

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

REGULATED ITEMS. The following are regulated items for purposes of sub. (1):

the emerald ash borer, Agrilus planipennis (Fairmaire) in any living stage.

Ash trees.

Ash limbs, branches, and roots.

Ash logs, slabs or untreated lumber with bark attached.

Cut firewood of all non-coniferous species.

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

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

Regulatory Considerations

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

If ash trees are identified within clearing and grubbing limits of the Project, the following measures are required for the disposal:

Chipped ash trees

May be left on site if used as landscape mulch within the project limits.

May be buried on site within the right-of-way in accordance with Section 201.3 (14) of the standard specifications.

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

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

Burning chips is optional if in compliance with Section 201.3 of the standard specifications.

Chips must be disposed of immediately and may not be stockpiled.

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

Ash logs, branches, and roots

May be buried without chipping within the existing ROW or on adjacent properties in accordance with Section 201.3 (14)(15) of the standard specifications.

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

Burning is optional if in compliance with Section 201.3 of the standard specifications.

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

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

Updates for compliance

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

Wisconsin Department of Agriculture, Trade and Consumer Protection

Division of Agricultural Resource Management

P.O. Box 8911

Madison WI 53708−8911

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

(NER11-0308)

10. Traffic Control.

Perform this work conforming to standard spec 643, and as the plans show, or as the engineer approves, except as follows.

Submit to engineer for approval a detailed traffic control plan for any changes to the proposed traffic control detail as the plans show. Submit this plan ten (10) days before the preconstruction conference.

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

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

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

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

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

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

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

Do not park or store any vehicle, piece of equipment, or construction materials on the right of way, unless otherwise specified in the traffic control article or without approval of the engineer.

All construction vehicles and equipment entering or leaving live traffic lanes shall yield to through traffic.

Equip all vehicles and equipment entering or leaving the live traffic lanes with a hazard identification beam (flashing yellow signal) capable of being visible on a sunny day when viewed without the sun directly on or behind the device from a distance of 1000 feet. Activate the beam when merging into or exiting a live traffic lane.

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

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

ner-643-065 (20171213)

11. Temporary Work Zone Clear Zone Working Restrictions.

The temporary work zone clear zone for this project is 18-feet from the edge of traveled way. If auxiliary lanes are present, clear zone is from the outside edge of the auxiliary lane.

Do not perform work in the median at any time unless protected by concrete barrier temporary precast in both directions except as allowed during lane closure periods.

Do not perform work within the clear zone unless protected by concrete barrier temporary precast or a lane closure during the allowed closure periods.

Park equipment and store materials, including stockpiles, a minimum of 30-feet from the edge of the traveled way. Equipment may be parked and material stored in the median if it meets the minimum distance requirement from both traveled ways or if it is protected by concrete barrier temporary precast.

If unsure whether an individual work operation will meet the safety requirements for working within the clear zone, review the proposed work operation with the engineer before proceeding with the work.

Replace standard specification 305.3.3.3(2) with the following:

If the roadway remains open to through traffic during construction and a 2-inch or more drop-off occurs within the clear zone, eliminate the drop-off prior to completing that day's work. Unless the special provisions specify otherwise, provide aggregate shoulder material compacted to a temporary 3:1 or flatter cross slope from the surface of the pavement edge.

ner-104-001 (20181017)

12. QMP Subgrade.

A Description

(1) 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 locations the plans show.

(2) Provide and maintain a quality control program. A quality control 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 subgrade 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. The contractor may obtain the CMM from the department's web site at:

https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/rdwy/cmm.aspx

B Materials

B.1 Quality Control Plan

(1) Submit a comprehensive written quality control plan to the engineer at or before the pre-construction meeting. Do not perform grading work 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. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in the contractor's laboratory as changes are adopted. Ensure that the plan provides the following elements:

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

B.2 Personnel

Perform the quality control sampling, testing, and documentation required under this provision using HTCP certified technicians. Have a 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 subgrade fill 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.

B.3 Laboratory

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

Materials Management Section
3502 Kinsman Blvd.
Madison, Wisconsin 53704
Telephone: 608-246-5388

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

B.4 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 Chapter 8 and maintain a calibration record at the laboratory.

(2) Furnish nuclear gauges from the department's approved product list at http://www.atwoodsystems.com/materials. Ensure that the gauge manufacturer or an approved calibration service calibrates the gauge within 12 months before using it on the project. Retain a copy of the calibration certificate with the gauge.

(3) Conform to ASTM D 2950 and CMM Chapter 8 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

(1) Conduct and submit a soil source study before beginning of grading operations. Ensure that this study identifies each distinct soil type on the project within the top 15 feet of cut areas and all borrow material. Provide the in-bank natural moisture content for each soil. Develop moisture-density curves for each identified soil type by utilizing AASHTO T

99 with a minimum of 5 individual points, and a zero air voids curve at a specific gravity of 2.65. Determine the maximum density and corresponding optimum moisture level for each soil type. Develop a site-specific family of Proctor curves for this contract from the completed soil source study and submit to the engineer for review and acceptance prior to the start of subgrade fill placement.

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

(3) 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 or borrow sites greater than 15 feet in depth that were not accessible during the initial study. Include data on additional soil types identified throughout the duration of subgrade fill placement. Ensure that tests of additional soil types are complete and the engineer accepts the results before incorporating the material into the roadway foundation.

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

NE Region Materials Lab
944 Vanderperren Way
Green Bay, Wisconsin 54304

(5) Retain and identify 2 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

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

1. Embankment portions of the project, except within 200 feet of bridge abutments.
2. Embankment within 200 feet of bridge abutments.
3. Subgrade cut portions of the project.
4. Embankment in pipe culvert trenches.
5. Structure and granular backfill placed at bridge abutments.

(2) Ensure that all tests are recorded and become part of the project records. Enter QC data into the applicable materials reporting system (MRS) software within 5 business days after results are available. 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.

(3) Post control charts in an engineer-approved location and update daily. Ensure that the control charts include the project number, test number, each test element, applicable control limits, contractor's individual test results, running average of the last 4 QC data points, and 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 CMM Chapter 8.

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

B.6.2 Records

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

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

(3) 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

(1) 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 subgrade fill 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.

(2) During subgrade construction, use sampling and testing methods identified in the CMM Chapter 8 to perform the required tests at randomly selected locations at the indicated minimum frequency in B.7.4 for each grading area.

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

(4) For each test, provide the cubic yards represented and the test location to within 2 feet horizontally and 0.5 feet vertically.

B.7.2 Field Density and Field Moisture

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

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

B.7.3 One-Point Proctor

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

B.7.4 Testing Frequency

B.7.4.1 Subgrade Embankment portions of the project, except within 200 feet of bridge abutments

(1) Perform the required tests at the following frequencies:

Test	Minimum Frequency
Field Density & Moisture (AASHTO T 310)	One per 3,000 cubic yards or portion thereof.
One-Point Proctor (AASHTO T 272)	One per 9,000 cubic yards or portion thereof.

B.7.4.2 Subgrade Embankment Within 200 Feet of Bridge Abutments

(1) Perform the required tests at the following frequencies:

Test	Minimum Frequency
Field Density & Moisture (AASHTO T 310)	One per 3,000 cubic yards or portion thereof.
One-Point Proctor (AASHTO T 272)	One per 9,000 cubic yards or portion thereof.

B.7.4.3 Subgrade Cut

(1) Perform the required tests at the following frequencies:

Test	Minimum Frequency
Field Density & Moisture (AASHTO T 310)	Less than 2000 linear feet per roadway - One per cut area. Greater than 2000 linear feet per roadway - One per 2,000 linear feet per roadway or portion thereof.

B.7.4.4 Subgrade Embankment in Culvert Pipe Trenches

(1) Perform the required tests at the following minimum frequencies:

Test	Minimum Frequency
Field Density & Moisture (AASHTO T 310)	Pipe diameter equal to 40-inch or Less - One (1) per trench. Pipe diameter Greater than 40-inch - Two (2) per trench, on separate lifts.
One-Point Proctor (AASHTO T 272)	One per 3,000 cubic yards or portion thereof.

B.7.4.5 Structure and Granular Backfill at Bridge Abutments

(1) Perform the required tests at the following minimum frequencies:

Test	Minimum Frequency
Field Density & Moisture (AASHTO T 310)	Two (2) per abutment on separate lifts
One-Point Proctor (AASHTO T 272)	One per 3,000 cubic yards or portion thereof.

B.7.5 Compaction Zones

B.7.5.1 Subgrade Embankment

(1) UPPER ZONE: Embankment material placed within 6 feet of the finished subgrade elevation is classified as upper zone material.

(2) LOWER ZONE: Embankment placed more than 6 feet below the finished subgrade elevation is classified as lower zone material

B.7.5.2 Subgrade Embankment Within 200 Feet of Bridge Abutments

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

B.7.5.3 Subgrade Cut

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

B.7.5.4 Subgrade Embankment in Culvert Pipe Trenches

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

B.7.5.5 Structure and Granular Backfill at Bridge Abutments

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

B.7.6 Control Limits

B.7.6.1 Field Density

(1) UPPER ZONE: The lower control limit for field density measurements in the upper zone is a minimum of 95% 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% of the maximum dry density for any individual test.

(2) LOWER ZONE: The lower control limit for field density measurements in the lower zone is a minimum of 93% of the maximum dry density as determined by AASHTO T 99 or T 272 for the 4-point running average and a minimum of 90% of the maximum dry density for any individual test.

B.7.6.2 Field Moisture Content

(1) The upper control limit for the field moisture content in the upper and lower zones is 105% of the optimum moisture as determined by AASHTO T 99 or T 272 for the 4-point running average.

(2) The lower control limit for the field moisture content in the upper and lower zones is 65% of the determined optimum moisture for the 4-point running average. There is no lower control limit for the field moisture of material having less than 5% passing the No. 200 sieve.

B.7.7 Corrective Action

(1) 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.

(2) 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.

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

B.8 Department Testing

B.8.1 General

(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 verification and independent assurance personnel for the project.

(2) 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

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

(2) The department will 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.

(3) The department will perform verification testing as follows:

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

2. The department will test the first split sample obtained by the contractor for the one-point Proctor. The engineer 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 30,000 cubic yards.

(4) 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.

(5) Compare Proctor QC and QV results. If Proctor QC and QV values are within 3.0 pcf, the test results will be deemed satisfactory and no further action is necessary. Proctor QC and QV values differing by more than 3.0 pcf will be investigated and resolved.

(6) 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.

(7) 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

(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, 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.

(2) 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.

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

B.9 Dispute Resolution

(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) 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

(1) 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

(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.

ner (20181128)

13. Base Aggregate Dense 1¼-Inch for Lower Base Layers.

Replace standard spec 305.2.2.1(2) with the following:

1. Use 1¼-inch base throughout the full base depth.
2. Use ¾-inch base in the top 3 inches of the unpaved portion of shoulders. Use ¾-inch base or 1¼-inch base elsewhere in shoulders.

stp-305-020 (20080902)

14. 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.

http://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

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

B.3.2 Comparison of Nuclear Gauges

B.3.2.1 Comparison of QC and QV Nuclear Gauges

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

B.3.2.2 Comparison Monitoring

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

B.4 Quality Control Testing and Documentation

B.4.1 Lot and Sublot Requirements

B.4.1.1 Mainline Traffic Lanes, Shoulders, and Appurtenances

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

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

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

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

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

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

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

B.4.2 Pavement Density Determination

B.4.2.1 Mainline Traffic Lanes and Appurtenances

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

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

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

B.4.2.2 Mainline Shoulders

B.4.2.2.1 Width Greater Than 5 Feet

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

B.4.2.2.2 Width of 5 Feet or Less

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

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

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

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

B.4.2.4 Documentation

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

B.4.3 Corrective Action

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

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

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

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

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

(6) If 2 consecutive sublot averages within the same paving pass and same target density are more than one percent below the specified target density, notify the engineer and take necessary corrective action. Document the locations of such sublots and the corrective action that was taken.

B.5 Department Testing

B.5.1 Verification Testing

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

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

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

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

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

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

B.5.2 Independent Assurance Testing

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

B.6 Dispute Resolution

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

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

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

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

B.7 Acceptance

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

C (Vacant)

D (Vacant)

E Payment

E.1 QMP Testing

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

E.2 Disincentive for HMA Pavement Density

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

E.3 Incentive for HMA Pavement Density

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

stp-460-020 (20181119).

stp-460-020 (20161130)

15. Notice to Contractor – Rock Fence post Installation

Proposed fencing is located within areas of high rock profiles. No separate payment will be made for any necessary drilling, blasting, or other means of excavation to set posts in rock.

16. Select Borrow

Conform to the requirements of standard spec 208 and as hereinafter provided.

Material.

Furnish and use material that consists of granular material meeting the following requirements: Not more than 25% of that portion passing the No. 4 sieve shall pass the No. 200 sieve.

(NER16-0107)

17. Salvage Topsoil.

Replace standard spec 625.3.2 (3) with the following:

Under the salvaged topsoil bid item, remove all the topsoil (humus-bearing soil), to the underlying sterile soil layer, within the proposed roadway foundation (limits of assumed one-to-one slopes extending outward and downward from the subgrade shoulder points). Excavate topsoil up to one foot in depth, with no additional compensation, to produce sufficient volumes to cover the designated salvaged topsoil or topsoil areas to the depths required. Topsoil material lying more than one foot below the original ground, not required for the item of salvaged topsoil or topsoil, will be paid for as common excavation. Salvage topsoil from embankment areas outside the roadway foundation if additional material is required to cover the slopes.

18. Coordination with Businesses

The contractor will arrange and conduct a meeting between the contractor, the department, local officials and business people to discuss the project schedule of operations including vehicular and pedestrian access during construction operations. Hold the first meeting 14 days prior to the start of work under this contract and 14 days prior to a staging change. The contractor shall notify all parties in writing a minimum of ten days prior to the first meeting being held.

(NER12-1003)

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19. Winter Maintenance

Snow may be plowed from the traveled roadway into the work site by the maintaining authority. The contractor is responsible for any snow removal from the work site that may be required to continue work operations.

The contractor is responsible for plowing any areas which may need to be cleared of snow or ice to accommodate changes in traffic control and to facilitate construction staging during winter months. Winnebago County or the local maintaining authority will not provide snow plowing operations in areas outside of the active traveled lanes.

Re-install or adjust any traffic control devices that may be damaged, removed, or shifted as part of normal winter maintenance operations. Clean and maintain traffic control devices as necessary or directed as a result of winter maintenance operations.

Anticipated locations of traffic control devices are shown in the plans. Review the work site with the engineer for locations where additional area may be available to maximize lane and shoulder widths over winter months to aid in winter maintenance operations and to maximize snow storage area. Adjust traffic control devices in these areas.

Snow plowing, ice removal including any road salt which may be required, maintenance and cleaning of traffic control devices, and other winter maintenance activities are incidental to other items of work under this contract.

At dead-end roadways, provide access to the entire paved or gravel area of the cul-de-sac for access and turnaround of snowplow vehicles used by the maintaining authority. Do not hinder snowplow access to the cul-de-sac surface with parked equipment, stored materials, or placement of traffic control devices.

20. RBC Progress Schedule, Item 108.4300.

Provide a Relationship Bar Chart Progress (RBC) schedule as specified in standard spec 108.4.3 of the stand specifications.

Amend standard spec 108.4.3.3 as follows:

Replace the word “monthly” with “weekly”.

Supplement standard spec 108.4.3.3 as follows:

A relationship bar chart progress (RBC) schedule for the following week shall be submitted to the engineer by 11:00 AM each Wednesday. Include in the schedule any contract work that will occur within 1,000 feet of Black Otter Creek including but not limited to grading and restoration. Submit any changes to the weekly schedule to the engineer by 11:00 AM two working days prior to implementing any changes to the schedule. Changes to the work schedule for Monday will not be allowed after 11:00 AM on the prior Thursday. Changes to the schedule for Tuesday must be made by 11:00 AM on Monday.

21. Removing Old Structure Over Waterway with Minimal Debris Station 339+40, Item 203.0600.S.

Conform to standard spec 203 as modified in this special provision.

Add the following to standard spec 203:

203.3.6 Removals Over Waterways and Wetlands

203.3.6.2 Removing Old Structure Over Waterway with Minimal Debris

(1) Remove the existing private structure over Black Otter Creek in large sections conforming to the contractor’s approved structure removal and clean-up plan. During superstructure removal, prevent all large pieces and minimize the number of small pieces from entering the waterway or wetland. Remove all reinforcing steel, all concrete, and all other debris that falls into the waterway or wetland. The contractor may leave limited amounts of small concrete pieces scattered over the waterway floor or wetland only if the engineer allows.

(2) Submit a structure removal and clean-up plan as part of the erosion control implementation plan required under standard spec 107.20. Do not start work under the structure removal and clean-up plan without the department's written approval of the plan. Include the following information in the structure removal and clean-up plan:

- Methods and schedule to remove the structure.
- Methods to control potentially harmful environmental impacts.
- Methods for superstructure removal that prevent all large pieces and minimize the number of small pieces from entering the waterway or wetlands.
- Methods to control dust and contain slurry.
- Methods for removing piers and abutments. If blasting in water, include restrictions that regulatory agencies and the contract require.
- Methods for cleaning the waterway or wetlands.

(3) If stockpiling spoil material, place it on an upland site an adequate distance from the waterway, wetland, or any open water created by excavation. Install silt fence between the spoil pile and the waterway, wetland, or excavation site.

Add the following Removing Old Structure bid item to standard spec 203.5.1:

ITEM NUMBER	DESCRIPTION	UNIT
203.0600.S	Removing Old Structure Over Waterway With Minimal Debris Station 339+40	LS

stp-203-020 (20080902)

22. Removing Underdrain, Item 204.9090.S

A Description

This special provision describes removing underdrains 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 Underdrain in length by linear foot, acceptably completed.

E Payment

Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
204.9090.S	Removing Underdrain	LF

Payment is full compensation for removing, hauling and disposing of underdrain; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the contract work.

stp-204-025 (20150630)

23. Bar Steel Reinforcement HS Stainless Structures, Item 505.0800.S; Bar Couplers Stainless (Size), Item 505.0980.S - .0999.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
505.0980.S - .0999	Bar Couplers Stainless	Each

24. 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)

25. Fencing Small Animal, Item 616.0120.S.

A Description

Furnish and install small animal fencing, which will be used as a barrier to prevent small animals from entering travel lanes or to funnel them into animal crossings, according to standard spec 616 and as hereinafter provided.

B Materials

Furnish type 304 welded stainless steel-mesh made in the U.S. If stainless steel is available and made in the U.S. then use stainless; if not available, document and substitute appropriately. The steel-mesh shall have a minimum wire diameter of 0.047 inches (18-gauge) and a maximum opening width of ½-inch. Furnish posts, fittings, and fasteners that meet the requirements of standard spec 616.2.2 Woven Wire Fence Materials.

C Construction

Attach the steel-mesh fence to the bottom of woven wire fence with wire fasteners or staples that conform to standard spec 616.2.2.

In upland areas, trench and backfill the steel mesh to a minimum depth of 6 inches. In wetlands, install the fencing to a depth of 6 inches below the waterline. A minimum of 18 inches of the steel mesh must remain above the ground or water, running parallel with the woven wire fence.

Fasten the steel mesh to the woven wire fence with fasteners. At each end of the small animal fence, construct a turnaround with the same steel mesh material (see construction details); install the turnaround so that it directs small animals back to the fenced area, according to the plan details. Size the opening of the turnaround appropriately; larger animals require a larger turnaround area.

D Measurement

The department will measure Fencing Small Animal in length by the linear foot, including the entire length of the turnarounds, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
616.0120.S	Fencing Small Animal	LF

Payment is full compensation for clearing and grubbing the fence line; for excavating for, and trenching in, the fencing; for furnishing and setting posts; for furnishing and erecting all fencing components; for removing and

properly disposing of all debris, excess excavation and surplus material. Payment for the woven wire fence will be made under the appropriate bid item.

stp-616-005 (20110930)

26. 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)

27. Stone or Rock Ditch Checks, Item 628.7515.S.

A Description

This special provision describes furnishing and installing stone or rock ditch checks as the plans show or as the engineer directs.

B Materials

Provide materials conforming to size requirements for size no. 2 coarse aggregate for concrete masonry or riprap according to the standard spec 501.2.5.4.5. Railroad ballast or breaker run stone conforming to the following applicable gradations may also be used:

Railroad Ballast

Sieve Size	Percent by Weight Passing
2 Inch	100
1 Inch	20 – 55
3/8 Inch	0 -5

Breaker Run Stone

Sieve Size	Percent by Weight Passing
5 Inch	100
1½ Inch	0 – 50
3/8 Inch	0 - 5

Incorporate stone or rock in the ditch checks that is hard, sound, and durable, and meets the approval of the engineer.

C Construction

Place stone or rock ditch checks immediately after shaping of the ditches or slopes is completed. Place stone or rock ditch checks at right angles to the direction of flow and construct to the dimensions and according to the details the plans show.

Remove sediment from behind the stone or rock ditch checks when it has accumulated to one half of the original height of the dam.

D Measurement

The department will measure Stone or Rock Ditch Checks in volume by the cubic yard of material incorporated in the work.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
628.7515.S	Stone or Rock Ditch Checks	CY

Payment is full compensation for furnishing, producing, crushing, loading, hauling, placing, and shaping and maintaining Stone or Rock Ditch Check.

The quantity of sediment removed shall be multiplied by a factor of ten and paid for as Enter type of excavation Excavation.

stp-628-050 (20170615)

28. Landscape Planting Surveillance and Care Cycles.

If the care specialist fails to perform any of the required care cycles as specified in standard

spec 632.3.19.1, the department will assess daily damages in the amount of $100 to cover the cost of performing the work with other forces. The department will assess these damages for each day the requirements of the care cycle remain incomplete, except when the engineer extends the required time period.

29. Clay Cover, Item 640.1305.S.

A Description

This special provision describes furnishing and installing low permeable clay in the areas shown on the plans.

B Materials

For each source, prior to excavating and hauling the low permeable clay to the project, submit the results of the laboratory tests described in Table 1. The laboratory testing shall document that the each clay type from the source meets or exceeds the requirements.

The sample for the hydraulic conductivity test shall be remolded clay at a minimum dry density of 95% of the maximum dry density as determined by the Standard Proctor test ASTM D698 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 ASTM D698. Conduct the laboratory source testing at the frequency listed in Table 1. Submit the test results to the engineer for review, two weeks prior to construction.

C Construction

C.1 Low Permeable Clay Placement

C.1.1 Subgrade

Compact the subgrade to a minimum density as defined in standard spec 207.3.6.2, Standard Compaction, or as otherwise specified in the contract requirements.

Erosion Protection

Do not place the low permeable clay until after all adjacent site grading has been completed and only after silt fence has been installed completely around the area of low permeable clay placement.

Low Permeable Clay Placement

After the fine grading is complete, place and compact low permeable clay in completed 6-inch lifts. Place each lift of low permeable clay in one continuous lift. See plans for low permeable clay construction limits. Measure the thickness of the low permeable clay shown on the plans perpendicular to the surface.

Notify the engineer at least three days prior to starting construction of low permeable clay.

Table 1						
Reference	Number	Test Title	Requirements	Testing Frequency		
				Screening	QA/QC[3]	
					Top Cover	Sideslopes
ASTM[1]	D698	Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort	NA[2]	1/source	1/source	1/source
ASTM	D1140	Standard Test Methods for Amount of Material in Soils Finer Than the No. 200 (75-um) Sieve	Per NR 538[4]	2/source	1/2,220 cy per lift[5]	1/3,330 cy per lift
ASTM	D422	Standard Test Method for Particle-Size Analysis of Soils	Per NR 538	2/source	1/2,220 cy per lift	1/3,330 cy per lift
ASTM	D4318	Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.	Per NR 538	2/source	1/2,220 cy per lift	1/3,330 cy per lift
ASTM	D2487	Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)	Per NR 538	2/source	1/2,220 cy per lift	1/3,330 cy per lift
ASTM	D2922	Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)	Per NR 538	NA	200'x200' Grid/lift	240'x240' Grid/lift
ASTM	D5084	Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter	Per NR 538	1/source[6]	1/6,660 cy per lift[7]	1/10,000 cy per lift[7]

Notes:

1. ASTM = American Society of Testing and Materials.
2. NA = Not applicable.
3. QA/QC = Quality Assurance / Quality Control.
4. NR 538 = Wisconsin Department of Natural Resources regulations Chapter NR 538 Beneficial Use of Industrial Byproducts.
5. A lift shall not exceed 8-inches.
6. 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

Compact the low permeable clay to a minimum of 95% Standard Proctor ASTM D698 Maximum Dry Density with a footed compaction equipment having feet at least as long as the loose lift height. As needed, clay shall be disked or otherwise mechanically processed prior to 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 low permeable clay 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 low permeable clay testing and documentation has been completed for the previous lift.

During placement of the low permeable clay the minimum moisture content shall be as defined by the testing performed in the source evaluation and with the following limits:

- No drier than the optimum moisture content as determined by the Standard Proctor test ASTM D698.

If the in-place low permeable clay fails to meet the requirements of Table 1, then remove and replace or rework any portion of the low permeable clay not meeting the project requirements until project specifications are met. There shall be no compensation for removing, replacing and reworking low permeable clay not meeting the requirements in Table 1.

QA/QC Testing of the Low Permeable Clay

The department will perform the QA/QC testing at the frequency shown in Table 1. The department will record the thickness of low permeable clay on a 200-foot x 200-foot grid pattern for the top cover and sideslopes.

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.

D Measurement

The department will measure Clay Cover 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
640.1305.S	Clay Cover	CY

Payment is full compensation for furnishing, placing and compacting the low permeable clay; and for performing all tests. stp-640-017 (20130615)

30. Temporary Curb Ramp, Item 644.1601.S.

A Description

This special provision describes providing, maintaining, and removing temporary curb ramps.

B Materials

Furnish materials as follows:

- Asphaltic surface conforming to standard spec 465.2.
- Engineer-approved ready mixed concrete or ancillary concrete conforming to standard spec 602.2 except no QMP is required.
- Commercially available prefabricated curb ramps conforming to Americans with Disabilities Act Accessibility Guidelines.

Furnish yellow detectable warning fields conforming to Americans with Disabilities Act Accessibility Guidelines. Use either an engineer-approved surface-applied type or cast iron from the department's approved products list.

C Construction

Provide and maintain temporary curb ramps, including detectable warning fields, throughout the project duration. Place and compact a dense graded aggregate foundation before placing the curb ramp, unless the curb ramp is to be placed on existing roadway surface.

Remove and dispose temporary curb ramps and associated detectable warning fields when no longer required.

D Measurement

The department will measure temporary curb ramps by each individual ramp, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
644.1601.S	Temporary Curb Ramp	Each

Payment is full compensation for providing, maintaining, and removing temporary curb ramps.

644-20 0150630)

31. Temporary Pedestrian Safety Fence, Item 644.1616.S.

A Description

This special provision describes providing, maintaining, and removing the temporary pedestrian safety fence.

B Materials

Furnish notched metal “T” or “U” shaped fence posts weighing 1 1/3 pounds per foot or more.

Furnish select 2x4 dimensional lumber.

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

The engineer may allow prefabricated fencing systems conforming to Americans with Disabilities Act Accessibility Guidelines.

C Construction

Provide a continuous safety fence with the top edge free of sharp or rough edges.

Repair or reconstruct installations disturbed during construction operations. Remove and dispose of as specified in standard spec 204.3 when no longer required.

D Measurement

The department will measure Temporary Pedestrian Safety Fence 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
644.1616.S	Temporary Pedestrian Safety Fence	LF

Payment is full compensation for providing, maintaining, and removing the temporary pedestrian safety fence.

stp-644-025 (20150630)

32. Concrete Masonry Eco-Passage, Item SPV.0035.01

A Description

Construct inlets and aprons in accordance to the plans and these special provisions.

This work does not include furnishing or installing pipe culverts.

B Materials

Furnish materials conforming to the following:

Concrete……... section 501

Steel reinforcement…….. section 505

QMP……..section 715

C Construction

C.1 General

Unless specified otherwise, conform to the requirements for grade A, A-FA, A-S, A-T, A-IS, A-IT or A-IP concrete as specified in section 501. Where the contract specifies or the engineer allows, the contractor may use high early strength concrete.

Conform to coarse aggregate sizes specified in 501.2.5.3.4 and 501.2.5.4.5

C.2 Placing Concrete

Before placing concrete, give the engineer sufficient notice to allow inspection of the forms, reinforcement, and casting preparations.

C.3 Removing Falsework and Applying Load

Do not remove falsework with a span of 4-feet or less until 5 days after pouring, exclusive of days subject to temperatures below 40° F; except, if using concrete grades A-FA, A-S, A-T, A-IS, A-IT or A-IP, and field operations are not controlled by cylinder tests, then increase the time to 12 days. If controlling field operations by cylinder tests, the engineer may approve falsework removal, if cylinder tests show a compressive strength not less than 2000 pounds per square inch. Determine cylinder strengths as specified under falsework in 502.3.4.2. If using high early strength concrete, the engineer may reduce the above 5-day period to 3 days.

Remove falsework with a span of more than 4-feet according to 502.3.4.2 for removing falsework for concrete bridges. The contractor may backfill inlets and aprons that have attained the specified compressive strength or upon expiration of the minimum times as specified in 206.3.13. Do not apply additional loads until attaining a compressive strength of 3500 psi or, absent compressive strength information, for at least 21 days.

C.4 Curing

Cure concrete in the eco-passage inlets and aprons by any of the methods specified for curing substructure units in 502.3.8.

D Measurement

The department will measure Concrete Masonry Eco-Passage by the cubic yard acceptably completed. The department will not measure excavation, reinforcement, work or material for forms, pumping, bracing or other incidental necessary to complete the work. The department will measure Concrete Masonry Eco-Passage that constitutes the completed and accepted structure according to the provisions of the contract. All work included within the scope of this contract, but not listed as bid items in the proposal, is incidental to the work.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0035	Eco Passage Structure	CY

Payment is full compensation for all excavating; for furnishing and installing all materials, including reinforcement; for providing and placing forms; placing concrete including reinforcement; finishing, curing, protecting and heating; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the contract work.

33. Roadway Embankment, Item SPV.0035.02.

A Description

This special provision describes providing embankments and the materials needed to construct embankments. Conform to standard spec 207 and 208 and as below.

Material to construct embankments is incidental to this bid item, including Borrow.

B Materials

Furnish materials in accordance to standard spec 207.2.

If Borrow material is used conform to standard spec 208.2.

C Construction

Conform to standard spec 207.3.

If Borrow material is used conform to standard spec 208.3.

D Measurement

The department will measure Roadway Embankment by the cubic yard, acceptably completed in its final position, using the method of average end areas, with no correction for curvature. The department will determine the end areas from preconstruction cross-sections of the area being covered by the proposed embankment and from cross-sections of the completed work. The department will not make allowances for shrinkage, subsidence, lateral movement of the material, or for material in excess of that required for work the plans show or the engineer orders.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0035.02	Roadway Embankment	CY

Payment is full compensation for placing material to construct embankments which includes hauling, placing, forming, compacting, shaping, sloping, trimming, finishing, maintaining embankments and other incidental work required under standard spec 207 and 208.

Payment includes clearing, grubbing, excavating, disposing of surplus and unsuitable material and spreading salvaged material for covering the surfaces of excavated areas within the borrow sites.

The department will not pay separately for removing and disposing of rock, stone and boulders that the engineer rejects under 207.3.11.

The department will not pay separately for Borrow, 208.0100; it is incidental to this SPV.

The department will pay separately for Select Borrow under the bid item 208.1100.

ner-207-015 (20190402)

34. Temporary Slope Drain, Item SPV.0060.01

A Description

This special provision describes providing, maintaining, and removing a temporary slope drain to manage runoff from bridge decks before installation of surface drains, storm sewer, and pavement on the bridge approaches or permanent slope stabilization.

B (Vacant)

C Construction

Construct temporary slope drain conforming to the details shown in the plan and as required to fit the conditions of each location. Maintain the temporary slope drain at regular intervals or as the engineer directs. At a minimum maintain temporary slope drains until installation of permanent surface drains, storm sewer, and pavement are complete for bridges with finished approaches. Maintain the temporary slope drain at bridges without finished approaches or permanent drainage structures until downstream fill slopes are stabilized to prevent runoff scour.

D Measurement

The department will measure Temporary Slope Drain as each individual location installed conforming to the contract and accepted.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.01	Temporary Slope Drain	EACH

Payment is full compensation for furnishing and maintaining all materials; and for removal of the temporary slope drains.

ner-210-015 (20171213)

35. Wood Gates Double Leaf 20-Foot, Item SPV.0060.02

A Description

This special provision describes furnishing and erecting wood gates in accordance with the details shown on the plans, standard spec 507, and as follows.

B Materials

Provide structural lumber and timber conforming to standard spec 507.2.2. Treat structural lumber and timber by the pressure process conforming to standard spec 507.2.2.6, except that creosote-coal tar or pentachlorophenol shall not be used for treatment.

Provide bolts, nuts, bolt hooks that are zinc coated and washers in accordance with ASTM Designation A325.

Provide all hardware and miscellaneous steel plates that are in accordance with ASTM A36M. Paint all miscellaneous steel plates with a catalyzed (two component) epoxy paint system from the department's APL, black in color, over a zinc rich primer according to standard spec 517.2.

A gate lock is not required.

C Construction

Construct Wood Gates Double Leaf 20-Foot according to the details shown in the plans. Gate lock not to be installed.

D Measurement

The department will measure Wood Gates Double Leaf 20-Foot as each individual unit, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.02	Wood Gates Double Leaf 20-Foot	Each

Payment for Wood Gates Double Leaf is full compensation for furnishing and installing all materials, including treated timbers, hardware, and steel plates.

36. Street Sweeping, Item SPV.0075.01

A Description

Remove small dirt and dust particles from the roadway using a street sweeper periodically during the project as directed by the engineer.

B (Vacant)

C Construction

Provide a self-contained mechanical or air conveyance street sweeper and dispose of the material collected.

D Measurement

The department will measure Street Sweeping by the hour that the street sweeper is on the project picking up and removing debris from the roadway.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0075.01	Street Sweeping	HRS

Payment is full compensation for furnishing street sweeper; sweeping roadway; disposing of the material collected; and for all labor, equipment, tools, and incidentals necessary to complete the work.

(NER15-0430)

37. Chain Link Fence 5-FT Special, Item SPV.0090.01.

A Description

Furnish and erect Chain Link Fence conforming section 616 of the standard specifications.

B Materials

Conform to section 616.2.3 of the standard specifications

C Construction

Conform to 616.3.3 of the standard specifications. Trench and bury the chain link fence 1-FT beneath finished ground surface. Backfill and compact the trenched area to match adjacent finished ground grades.

D Measurement

The department will measure Chain Link Fence 5-FT Special by the linear foot of fencing acceptably 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.0090.01	Chain Link Fence 5-FT Special	LF

Payment is full compensation for providing and installing temporary turtle turnarounds to keep the animals out of the work area, for clearing and grubbing the fence line; for excavating; for setting posts including placing concrete; for erecting tensioning all fencing components; for installing grounds; and for removing and disposing of all debris, excess excavation, and surplus materials; and for providing longer posts driven in unstable soils at no additional cost to the department.

38. Reconnect Pipe Underdrain Parcel 165, Item SPV.0105.01

A Description

This special provision describes reconnecting new drain tile to the existing drain tile system, in accordance to standard spec 612.

B Materials

Furnish pipe underdrain that is in accordance to the pertinent requirements of standard spec conforming to standard spec 612.2.

C Construction

Remove existing underdrain damaged by construction operations. Connect new pipe underdrain of matching diameter to the existing underdrain system with the appropriate coupling or by means approved by the engineer. Verify positive drainage. Place rodent guard at outlet. Any additional pipe or materials required to connect the existing underdrain shall be considered incidental to this bid item.

D Measurement

The department will measure Reconnect Pipe Underdrain as a single lump sum acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.01	Reconnect Pipe Underdrain	LS

Payment is full compensation for providing and installing all materials including pipe, connections, fittings, and rodent guard; for excavation; laying pipe; backfilling and for making connections to new or existing pipe.

39. Steel Grating, Item SPV.0165.01.

A Description

Furnish and erect steel grating in accordance to pertinent specifications of section 515 of the standard specifications, the plans, and these special provisions.

B Materials

Furnish steel conforming to AASHTO M270 (ASTM A709) grade 50. Zinc coat steel grating according to ASTM A 123.

Manufacture the steel grating to conform to the thickness, section, loading, and other requirements the plans show.

Before fabricating submit complete detailed shop drawings to the engineer for approval. These drawings shall show the spacing and size of all component parts, the size and length of welds, splices and trims, and complete assembly details, including size and location of recommended erection welding.

The contractor may submit their own design with approval of engineer.

C Construction

Assemble the sections of the steel grating on the structure and weld the abutting main elements and connection members between the sections to provide full continuity for the entire grating section or between any points the plans indicate. Weight the steel grating assembly down or clamp it in place to make a tight joint with full bearing on its supports before welding. Use the location, size, and length of the welds that the manufacturer recommends or as the engineer approves.

Perform all shop and field welding as specified in 506.3.19 of the standard specifications and as follows:

- Perform welding on dry materials
- Ensure an ambient temperature above 32°F at welding time.
- Ensure welding surfaces are clean and free from paint, grease, rust, or other materials that prevents a proper weld.

Spot paint all damaged places in the zinc coating and all field welds with a department-approved zinc-rich paint. Clean all field welds of scale or slag and neutralize the welds as specified in 517.3.1.3.1 of the standard specifications before spot painting.

D Measurement

The department will measure Steel Grating by the square foot of grating acceptably 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.0165.01	Steel Grating	SF

Payment is full compensation for fabricating, zinc coating, and furnishing the steel grating, for erecting, welding, and spot painting, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the contract work.

40. Wall Concrete Panel Mechanically Stabilized Earth LRFD/QMP, Item SPV.0165.02.

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 in Room 601 of the Hill Farms State Transportation Building in Madison or by calling (608) 266-8494.

B.2 Design Requirements

It is the responsibility of the contractor to submit a design and supporting documentation as required by this special provision, for review and acceptance by the department, to show the proposed wall design is in compliance with the design specifications. The submittal shall include the following items for review: detailed plans and shop drawings, complete design calculations, explanatory notes, supporting materials, and specifications. The detailed plans and shop drawings shall include all details, dimensions, quantities and cross-sections necessary to construct the walls. Submit electronically to the engineer and Bureau of Structures for review and acceptance. Submit no later than 60 days from the date of notification to proceed with the project and a minimum of 30 days prior to the date proposed to begin wall construction.

The plans and shop drawings shall be prepared on reproducible sheets 11 inch x 17 inch, including borders. Each sheet shall have a title block in the lower right corner. The title block shall include the WisDOT project identification number and structure number. Design calculations and notes shall be on 8 ½ inch x 11 inch sheets, and shall contain the project identification number, name or designation of the wall, date of preparation, initials of designer and checker, and page number at the top of the page. All plans, shop drawings, and calculations shall be signed, sealed and dated by a professional engineer licensed in the State of Wisconsin.

The design of the wall shall be in compliance with the current American Association of State Highway and Transportation Officials LRFD (AASHTO LRFD) Bridge Design Specifications with latest interim specifications for Mechanically Stabilized Earth Walls, WisDOT's current Standard Specifications for Highway and Structure Construction (standard spec), Chapter 14 of the WisDOT LRFD Bridge Manual and standard engineering design procedures as determined by the Department. Loads, load combinations, load and resistance factors shall be as specified in AASHTO LRFD Section 11. The associated resistance factors shall be defined 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 concrete leveling pad. The bottom units shall be horizontal and centered on the leveling pad. The minimum thickness of the leveling pad shall be 6-inches. The minimum width of the leveling pad shall be 12-inches.

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, and have cast-in-place concrete pads or footings. 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.

For 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.

For 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.

A minimum of two bearing pads shall be used per panel. The allowable bearing stress shall not exceed 900 psi. The bearing pads shall be preformed EPDM rubber conforming to ASTM D2000, Grade 2, Type A, Class A with a minimum Durometer Hardness of 80, or high- density polyethylene pads with a minimum density of 0.034 lb/in^3 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 Backfill

Furnish and place backfill for the wall as shown on the plans and as hereinafter provided.

Place backfill in a zone extending horizontally from the back face of the wall facing to 1 foot minimum beyond the end of the reinforcement and extending vertically from the top of the leveling pad to a minimum of 3 inches above the final reinforcement layer.

Use natural sand or a mixture of sand with gravel, crushed gravel or crushed stone. Do not use foundry sand, bottom ash, blast furnace slag, crushed/recycled concrete, crushed/milled asphaltic concrete or other potentially corrosive material.

Provide material conforming to the following gradation requirements as per AASHTO T27.

Sieve Size	% by Weight Passing

1 inch	100
No. 40	0 - 60
No. 200	0 - 15

The material shall have a liquid limit not greater than 25, as per AASHTO T89, and a plasticity index not greater than 6, as per AASHTO T90. Provide the percent by weight, passing the #4 sieve.

In addition, backfill material shall meet the following requirements.

Test	Method	Value	
		(Galvanized)	(Aluminized Type 2)
pH	AASHTO T-289	5.0-10.0	5.0 – 9.0
Sulfate content	AASHTO T-290	200 ppm max.	
Chloride content	AASHTO T-291	100 ppm max.	
Electrical Resistivity	AASHTO T-288	3000 ohm-cm min.	1500 ohm-cm min.
Organic Content	AASHTO T-267	1.0% max.	
Angle of Internal Friction	AASHTO T-236[1]	30 degrees min. (At 95.0% of maximum density and optimum moisture, per AASHTO T99, or as modified by C.2.)	

[1] If the amount of P-4 material is greater than 60%, use AASHTO 236 with a standard-size shear box. Test results of this method may allow the use of larger angles of internal friction, up to the maximum allowed by this specification.

If the amount of P-4 material is less than or equal to 60%, two options are available to determine the angle of internal friction. The first method is to perform a fractured faces count, per ASTM D5821, on the R-4 material. If more than 90% of the material is fractured on one face and more than 50% is fractured on two faces, the material meets the specifications and the angle of internal friction can be assumed to be 30 degrees. The second method allows testing all P-1" material, as per AASHTO T-236, with a large shear box. Test results of this second method may allow the use of larger angles of internal friction, up to the maximum allowed by this specification.

Prior to placement of the backfill, obtain and furnish to the engineer a certified report of test results that the backfill material complies with the requirements of this specification. Specify the method used to determine the angle of internal friction. This certified report of test shall be less than 6 months old. Tests will be performed by a certified independent laboratory. In addition, when backfill characteristics and/or sources change, provide a certified report of tests for the new backfill material. Additional certified report of tests are also required. These additional backfill tests may be completed at the time of material production or material placement, with concurrence of the engineer. If this additional testing is completed at the time of material production, complete testing for every 2000 cubic yards of backfill or portion thereof. If this additional testing is completed at the time of material placement, complete testing for every 2000 cubic yards of backfill, or portion thereof, used per wall. For the additional required testing for every 2000 cubic yards of backfill placement, if the characteristic of the backfill and/or the source has not changed then Angle of Internal Friction tests are not included in the additional required testing. All certified reports of test results shall be less than 6 months old and performed by a certified independent laboratory.

B.3.3 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. 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.

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 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.

C3.3 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://www.atwoodsystems.com/. Ensure that the 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 ASTM D6938 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.

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 the Wall Concrete Panel Mechanically Stabilized Earth by the square foot acceptably completed, measured at the front face of wall as defined by the pay limits the contract plans show. Unless the Engineer directs in writing, a change to the limits indicated on the contract plan, wall area constructed above or below these limits will not be measured for payment.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0165.02	Wall Concrete Panel Mechanically Stabilized Earth LRFD/QMP	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 and leveling pad; constructing the retaining system including drainage system; providing backfill, backfilling, compacting, developing/completing/documenting the quality management program, and performing compaction testing..

Payment limit for all walls is the line of minimum embedment per section B.2. No payment will be made for additional embedment detailed for construction purposes. Parapets, railings, abutment bodies and other items above the wall cap or coping will be paid for separately. Vehicle barrier and its support will be paid separately.

Any required topsoil, fertilizer, seeding or sodding and mulch will be paid for at the contract unit price for those items.

SPV.0165.02 (20170223)

41. Temporary Shoring Railroad, Item SPV.0165.03.

A Description

This special provision describes furnishing and installing temporary shoring at locations alongside railroad tracks as shown on the plan and conforming to the shoring design requirements.

B Materials

B.1 Shoring Design

Provide an effective shoring system capable of withstanding Coopers E-80 live load surcharge, and which is in compliance with OSHA and Federal Railroad Administration (FRA) requirements. For reference, use “Guidelines For Temporary Shoring” published by Union Pacific Railroad and The Burlington Northern and Santa Fe Railway (BNSF). A copy of these guidelines may be obtained from the department at the Bureau of Railroads & Harbors. Where conflicts exist, the standard specifications, special provisions and plans shall supercede these guidelines.

Refer to standard spec 107.17(5) and (6) regarding the development and submittal of shop drawings, detailed plans, and computations for temporary construction near the BNSF’s tracks. Include in the submitted drawings and plans the proposed method of installation and removal of the shoring not included in the contract plans. In all calculations, take into consideration railroad surcharge loading and design the shoring to meet Coopers E-80 live loading.

C Construction

The BNSF will coordinate train operations with the contractor to the extent possible, consistent with its operational requirements. The number and duration of work windows free of train operations available per day will vary depending on operational requirements. At the end of each window, leave the construction area in a condition that will allow for safe and normal train operations. Do not leave shoring

extended above the top of rail within 12'-0" from the centerline of the nearest track. In January 2005, W windows per weekday of approximately X to Y hours each and V windows per weekend day of approximately Z hours existed. Train operations and available windows for work and hours available for work within windows are subject to change. Contact Mark Leemon – Manager Public Projects, Burlington Northern and Santa Fe Railway Company, 80 44th Avenue NE, Minneapolis, MN 55421, Telephone (763) 782-3482 at least three working days in advance of construction operations that require implementation of the temporary shoring.

Provide, install and maintain adequate protection for people within the BNSF's right of way. Cover, guard, and/or protect all excavations, holes, or trenches within the BNSF's right-of-way when they are not being worked on. When leaving work site areas at night and over weekends, secure the areas and leave them in a condition that will ensure that railroad employees and other personnel, who may be working or passing through the area, are protected around excavations. Install handrails that are parallel to the track and not less than 9'-0" from the centerline of the nearest track. Handrails, fences, or other barrier methods must meet OSHA and FRA requirements. Backfill all excavations as soon as possible.

Upon completion of the need for the temporary shoring, remove the shoring or cut-off the shoring 4'-6" below the top of the adjacent rail. Backfill the space that is excavated but not occupied by the new permanent construction conforming to standard spec 206.3.13.

D Measurement

The department will measure Temporary Shoring Railroad in area by the square foot, and the quantity to be paid for will be the sum of the areas of exposed faces of shoring constructed at the locations shown on the plans. Area will be determined from measurements taken in the plane of the exposed face of the shoring.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0165.03	Temporary Shoring Railroad	SF

Payment for Temporary Shoring Railroad is full compensation for providing a verified design of the shoring; providing shop drawings and detailed plans; furnishing and hauling materials to each location; installing the shoring; maintaining the shoring as needed; removing the shoring; and backfilling upon completion of the need for the shoring.

Temporary shoring not required by the plans and installed for the convenience of the contractor's operations shall be considered incidental to work under this contract and will not be measured and paid for under this item.

42. Salvaged Topsoil above Riprap, Item SPV.0180.01.

A Description

This special provision furnishing, placing, spreading and finishing Salvaged Topsoil above Riprap, in accordance to standard spec 625 and as hereinafter provided.

B Materials

Conform to section 625.2(2) of the standard spec.

C Construction

Replace standard spec 625.3.3(1) with the following:

After preparing riprap medium in the areas designated for Salvaged Topsoil above Riprap to the required lines, grades, slopes and cross-section, place and spread the salvaged topsoil to a uniform depth as the plans show or as directed by the engineer.

Areas along the stream shoreline: Fill voids completely between individual pieces of riprap with salvaged topsoil and place and spread a minimum depth of 4 inches of salvaged topsoil above the riprap.

Areas along the stream bank: Fill voids completely between individual pieces of riprap with salvaged topsoil to the top of the riprap only.

D Measurement

The department will measure Salvaged Topsoil above Riprap by the square yard, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0180.01	Salvaged Topsoil above Riprap	SY

Follow standard spec 625.5.2.

43. 2-Inch Clear Stone, Item SPV.0195.01.

A Description

Furnish and place 2-inch clear stone as shown in the plans and as hereby described in this special provision.

B Materials

Furnish durable field or quarry stone that is sound, hard, dense, resistant to the action of air and water, and free of seams, cracks, or other structural defects. Use rounded stone pieces with a length and width no more than twice the thickness. Stone is to be relatively free of fines and sharp edges.

The department will determine the average dimension of stone pieces by averaging measurements of thickness, width, and length. The stone is to primarily consist of pieces that measure 2-inches in size.

Material shall be accepted by visual inspection. Do not place material without the engineer's approval of the stone quality, size, and shape.

C Construction

Excavate and prepare the bed for placing the clear stone at locations and depths as shown in the plans or as directed by the engineer. After placing the clear stone, restore the surface of adjacent work and dispose of surplus material.

Lay the 2-inch clear stone and firmly bed it in the slope and against the adjoining stones. Lay the stones perpendicular to the slope with ends in contact. Compact the clear stone thoroughly as construction

progresses. Make the finished surface even and tight. Place larger stone in the lower courses. Chink spaces between stones by firmly ramming spalls into place.

Place Geotextile Type R underneath 2-inch Clear Stone where indicated in the plan. The geotextile shall conform to section 645.3.6 of the standard specifications.

Unless specified otherwise, place 2” clear stone at the thickness show in the plans, measured perpendicularly to the slope.

D Measurement

The department will measure 2-inch Clear Stone by the ton acceptably completed. The contractor is to provide the department a ticket for each load of 2” Clear Stone placed on the project at the location and dimensions specified by the engineer.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0195.01	2-Inch Clear Stone	TON

Payment is full compensation for excavating, preparing the bed; providing and placing the stone; restoring adjacent work; disposing of surplus material; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the contract work.

Geotextile Type R will be paid for at the contract unit price for that item.

44. Shot Rock, Item SPV.0195.02.

A Description

Construct embankments and other portions of the work the plans show as shot rock.

Conform to the requirements of section 208 of the standard specifications and as hereinafter provided.

B Materials

Furnish and use material that consists of granular material meeting the following requirements.

Not more than 25 percent of the portion passing the No. 4 sieve shall pass the No. 200 sieve.

The material shall be substantially free of unconsolidated overburden materials, clay or silt soil, organic materials, and other deleterious materials. The nominal size of rock or salvaged concrete placed in the top 3 feet of the fill shall be no greater than 18 inches and lower than 3 feet no greater than 36 inches. The engineer may reject material produced from non-durable rock such as, shale, slate, disintegrated granite, or heavily weathered rock of any type.

C (Vacant)

D Measurement

The department will measure Shot Rock 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.0195.02	Shot Rock	TON

Payment is full compensation for providing all shot rock material; for all clearing, grubbing, excavating, sloping, shaping, trimming, loading, hauling, placing; compacting; disposing of surplus and unsuitable material; and for salvaging, stockpiling, rehandling, and spreading shot rock material.

45. Excavation, Hauling, and Disposal of Contaminated Material, Item SPV.0195.03.

A Description

A.1 General

This special provision describes excavating, loading, hauling, and disposing of contaminated material at a DNR approved landfill facility. The closest DNR approved landfill facility is:

Advanced Disposal Service Hickory Meadows Landfill

W3105 Schneider Road

Chilton, WI 54129

(920) 853-8553

Perform this work in accordance to standard specification 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 Material Locations

The department completed testing for soil and groundwater contamination for locations within this project where excavation is required.

Contaminated material such as general household waste, wood debris, tires, plastics, metal, ash, soil, and cardboard is potentially present at the following locations:

1. The former Hortonville Municipal Landfill, Station 432+00 ‘WB’ to 435+50 ‘WB’.

Contaminated soils and/or groundwater and/or underground storage tanks (USTs) may be encountered at other locations within the construction limits. If contaminated soils and/or groundwater and/or USTs are encountered elsewhere on the project, terminate excavation activities in the area and notify the engineer and the environmental consultant. Contaminated soil and/or groundwater at other locations shall be managed by the contractor under this contract. USTs will be removed by others.

For further information regarding previous investigation and remediation activities at these sites contact:

Name: Kathie VanPrice

Address: 944 Vanderperren Way

Green Bay, WI 54304

Phone: (920) 366-5674

E-mail: Kathie.vanprice@dot.wi.gov

A.3 Coordination

Coordinate work under this Contract with the environmental engineer:

Contact: Kathie VanPrice
Address: 944 Vanderperren Way, Green Bay, WI 54304
Phone: (920) 366-5674
E-mail: Kathie.vanprice@dot.wi.gov

The role of the environmental engineer will be limited to:

1. Determining the location and limits of contaminated material to be excavated based on soil analytical results from previous investigations, visual observations, and field screening of soil that is excavated;

2. Identifying contaminated materials to be hauled to the landfill facility;

3. Documenting that activities associated with management of contaminated material are in conformance with the contaminated material management methods for this project as specified herein; and

4. Obtaining the necessary approvals for disposal of contaminated material from the landfill facility

Provide at least a 14-calendar day notice of the preconstruction conference date to the environmental consultant. At the preconstruction conference, provide a schedule for all excavation activities in the areas of contamination to the environmental consultant. Also notify the environmental consultant at least three calendar days prior to commencement of excavation activities in each of the contaminated areas.

Identify the DNR approved landfill facility that will be used for disposal of contaminated materials, 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 of contaminated materials from the landfill facility.

Coordinate with the environmental consultant to ensure that the environmental consultant is present during excavation activities in the contaminated areas. Perform excavation work in each of the contaminated areas on a continuous basis until excavation work is completed.

A.4 Protection of Groundwater Monitoring Wells

Groundwater monitoring wells are not expected to be present within the construction limits. If encountered, protect all groundwater monitoring wells to maintain their integrity. Adjust wells that do not conflict with utilities, structures, curb and gutter, etc. to be flush with the final grade. For wells that conflict with the previously mentioned items, notify the environmental consultant, and coordinate with the environmental consultant the abandonment or adjustment of the wells by others. The environmental consultant will provide maps indicating the locations of all known monitoring wells, if requested by the contractor.

Coordinate with the environmental consultant to ensure that the environmental consultant is present to abandon and/or document the location of the groundwater monitoring well during excavation activities.

A.5 Excavation Management Plan Approval

The excavation management plan for this project has been designed to minimize the off-site disposal of contaminated material. The excavation management plan, including these special provisions, has been developed in cooperation with the WDNR. The WDNR's concurrence letter is on file at the Wisconsin Department of Transportation. For further information regarding the investigations, including waste characterization within the project limits, contact Kathie VanPrice with the department, at (920) 492-7175.

A.6 Health and Safety Requirements

Subsection 107.1 of the Standard Specifications is supplemented with the following:

During excavation activities, expect to encounter contaminated materials from the former landfill such as general household waste, wood debris, tires, plastics, metal, ash, soil, and cardboard. 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.

Implement a monitoring program as required by 29 CFR 1910.120(h) including but not limited to air monitoring for explosive gases and oxygen.

B (Vacant)

C Construction

Supplement standard specification 205.3 with the following:

The environmental consultant will periodically examine excavated material during excavations in the areas of known contamination within the construction limits.

Control operations in the contaminated areas to minimize the quantity of contaminated materials excavated and to ensure that excavations do not extend beyond the minimum required to construct utilities and highway improvements unless expressly directed to do so by the engineer.

The environmental consultant will periodically evaluate materials excavated from the contaminated areas to determine if the material will require offsite disposal or can be beneficially re-used on-site under highway pavements, behind retaining walls, or in back-slopes with 2-foot thick soil cover, including 4 inches of topsoil and grass cover. The environmental consultant will evaluate excavated materials based on field screening results, visual observations, and soil analytical results from previous environmental investigations. Assist the environmental consultant in collecting soil samples for evaluation using excavation equipment. The sampling frequency shall be a maximum of one sample for every 20 cubic yards excavated.

On the basis of the results of such field-screening, the material will be designated for disposal as follows:

- Excavation Common consisting of clean soil and/or clean construction and demolition fill (such as clean soil, boulders, concrete, reinforced concrete, broken pavement, bricks, building stone, and unpainted or untreated wood), which under NR 500.08 are exempt materials.

- Materials with significant contamination be disposed at a WDNR-licensed landfill facility. Materials will be considered to have significant contamination if solid waste and landfill debris can be visually confirmed. Also, significantly contaminated soil exhibits significant odor, staining, and/or elevated PID readings (for example, PID readings greater than 10 ppm).

- Soil exhibiting low-level contamination based on visual assessment and field screening (for example, PID readings less than 10 ppm and no visual evidence of solid waste or landfill debris) will be considered suitable for reuse as backfill for the construction project. Excess low-level contaminated soil that cannot be reused as backfill will also be disposed at a WDNR-licensed landfill facility.

- Potentially contaminated for temporary stockpiling and additional characterization prior to disposal.

Some material may require additional characterization prior to disposal. Provide for the temporary stockpiling of up to 200 cubic yards of contaminated material on-site that require additional characterization. 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 Department's environmental consultant will collect representative samples of the stockpiled material, laboratory-analyze the samples, and advise the contractor, within 10 business days of the construction of the stockpile, of disposal requirements. The stockpiled material shall be disposed either at the WDNR-licensed disposal facility by the contractor or, if characterized as hazardous waste, by the Department. As an alternative to temporarily stockpiling contaminated material that requires additional characterization, the contractor has the option of suspending excavation in those areas where such material is encountered until such time as characterization is completed.

Directly load and haul materials designated by the environmental consultant for off-site disposal to the DNR approved landfill facility. Use loading and hauling practices that are appropriate to prevent any spills or releases of contaminated materials or residues. Prior to transport, sufficiently dewater soils designated for off-site disposal so as not to contain free liquids. Verify that the vehicles used to transport 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 known contamination that appears to contain waste materials or may be 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.

D Measurement

The department will measure Excavation, Hauling, and Disposal of Contaminated Material in tons of contaminated material accepted by the landfill facility as documented by weight tickets generated by the landfill facility.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0195.03	Excavation, Hauling, and Disposal of Contaminated Material	Ton

Payment is full compensation for excavating, segregating, loading, hauling, and disposal of contaminated material; tipping fees including applicable taxes and surcharges; obtaining solid waste collection and transportation service operating licenses; assisting in the collection of samples for field evaluation; dewatering of materials prior to transport, if necessary; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work in accordance with the Contract.