CERTIFICATION

I hereby certify the attached supplemental specifications effective on March 1, 2013.

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/S/ *17 January 2013*

Bob Fode, P.E., Director
Office of Project Development

Date:

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATIONS

Effective Date: 03/01/2013

The following specifications are supplementary to the 2008 Edition of the *Standard Specifications for Road and Bridge Construction* as they apply to this Contract.

CERTIFICATION **PAGE I, VOL 1** **5/20/11**

Delete page I in its entirety and insert the following page:

COPIES OF THIS BOOK MAY BE OBTAINED FROM:
North Dakota Department of Transportation
Environmental and Transportation Services
608 East Boulevard Avenue
Bismarck, ND 58505-0700
Phone: (701) 328-2590
Fax: (701) 328-0310
Email: dotspecbook@nd.gov
www.dot.nd.gov

All orders must be prepaid by Check, Money Order, Discover, VISA, or MasterCard. Orders may be requested via fax, phone, or internet.

The electronic versions of:

Standard Specifications for Road and Bridge Construction, Volume I
Standard Specifications for Road and Bridge Construction, Volume II
Current Supplemental Specifications

are available at: www.dot.nd.gov

I hereby certify that this Standard Specifications Book was prepared under the Office of Project Development, compiled from specifications prepared, examined, adopted and implemented by the North Dakota Department of Transportation in accordance with established procedures, and as approved by the Federal Highway Administration.

Ronald Jason Henke
Ronald J. Henke, P.E.
Office of Project Development

2/9/11
Date

These North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction, 2008, are hereby approved for application on highway and related constructions contracts as referenced in the contract plans or specifications, and they shall apply as noted and amended by those documents.

Approved,

Grant Levi
Grant Levi, P.E.
Deputy Director for Engineering

2/9/11
Date

100 TABLE OF CONTENTS **PAGE 3** **3/26/10**

Delete the title of Section 106.09 “Buy American Products” in its entirety and insert “Buy America Products”.

102.00 BIDDING REQUIREMENTS AND CONDITIONS **PAGE 18** **7/1/12**

Delete Section 102 in its entirety and insert the following:

SECTION 102
BIDDING REQUIREMENTS AND CONDITIONS

102.01 PREQUALIFICATION OF BIDDERS.

Only prequalified Bidders will be allowed to bid on any Project. Evidence consists of detailed information regarding the Bidder’s finances, organization, equipment, and previous experience, provided on standard forms furnished by the Department. The prequalification forms shall be submitted not less than 7 days before the bid opening in which the Bidder desires to bid, and at such additional times as the Director may request or the Bidder elect. The prequalification shall be in force for the time period specified in the Department’s written authorization.

The Director reserves the right to check any or all statements submitted by the Bidder, and to obtain additional pertinent information from other sources. The Department reserves the right to disqualify a prospective Bidder for any reasons stated in Section 102.13.

102.02 CONTRACTOR’S LICENSE.

A Bidder is not required to have a Contractor’s license from the State of North Dakota to bid on a Project, however, a Contract will not be executed until the Contractor obtains an appropriate North Dakota Contractor’s license.

102.03 CONTENTS OF PROPOSAL FORMS.

The Proposal Form will show the location and description of the contemplated construction, the estimate of the various quantities, the types of work to be performed or materials to be furnished, and the schedule of items for which Unit Bid Prices are invited. The Proposal Form will state the time in which the work must be completed; and the date, time, and place for opening of Proposals. The Proposal form will also include any Special Provisions or requirements which vary from or are not contained in the Standard Specifications.

The Plans, Specifications, other documents designated in the Proposal Form will be considered a part of the Proposal whether attached or not.

102.04 ISSUANCE OF PROPOSAL FORMS.

Proposal Forms will be issued in accordance with the Advertisement for Bids.

102.05 INTERPRETATION OF QUANTITIES IN BID SCHEDULE.

The quantities appearing in the bid schedule are estimates prepared for comparison of bids. Payment will be made for actual quantities of work performed and accepted or materials furnished according to the Contract. The estimated quantities of work and materials may be increased, decreased, or pay items may be eliminated in their entirety.

102.06 EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS, AND SITE OF WORK.

The Bidder is to examine the site of the proposed work, the Proposal, Plans, Specifications, Supplemental Specifications, Special Provisions, and all other Contract forms before submitting a Proposal. The Bidder is responsible for all site conditions that should have been discovered with a Bidder

site investigation. The submission of a proposal will be considered conclusive evidence that the Bidder is satisfied with the conditions to be encountered in performing the work and as to the requirements of the proposed Contract.

Boring logs and other records of subsurface investigations are available for inspection by Bidders. It is made available so all Bidders have access to identical subsurface information available to the Department, and is not intended as a substitute for personal investigation, interpretations, and judgment of the Bidders. This availability shall not relieve the Bidder of the responsibility stated in the preceding paragraph. The Department will not be bound by any statement or representation concerning conditions made by any of its employees or agents before the execution of the Contract, unless included in the Proposal Form, Plans, Specifications, Supplemental Specifications, Special Provisions, or related Contract forms.

Any explanation desired by a Bidder regarding the meaning or interpretation of the Proposal Form, Plans, Specifications, etc., must be requested from the Central Construction Office in adequate time to allow a reply to reach all Bidders before submission of their Bids. Interpretations will be made by addendum. Oral explanations or instructions given before the bid opening will not be binding.

102.07 PREPARATION OF PROPOSALS.

A. **General.** The Bidder shall prepare the Proposal Form furnished by the Department utilizing the Expedite Files, unless the Department indicates that paper bids will be accepted.

The Department will provide bidding information, Plans, proposal forms, addenda and other documents on the Department's Web site. Bidders shall check the Department's Web site for addenda prior to submitting a bidder's proposal. The Department will post all addenda no later than 4:00 p.m. Central Time two days before the bid opening. An exception to this timeframe is the withdrawal of a project from the bid opening. Bidders shall acknowledge the receipt of all addendums as designated in the proposal form. Electronic bid files (Expedite files) are provided through the Bid Express on-line bidding exchange at www.bidx.com/ and the Department's Web site at www.dot.nd.gov/ . Bidders shall ensure they have downloaded any addenda files prior to submitting their final bid. Bidders shall check either the Bid Express Web site or the Department's Web site after 5:00 p.m. Central Time two days before the bid opening, to ensure that all addenda files for the Expedite files have been downloaded before submitting the final bid.

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

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

When an item on the Bid Schedule allows a choice of alternates, the Bidder shall indicate the choice for that particular item.

Proposals submitted by (1) an individual must be signed by that individual, (2) a partnership, must be signed by a partner, or (3) a corporation must be signed by an officer of the corporation with the officer's title. Proposals submitted by a joint venture must be signed by a legally qualified representative of each of the parties to the joint venture. A Proposal may be executed for an individual, a legal entity, or a joint venture by anyone having a power of attorney, provided a copy of the power of attorney is attached to the proposal or is previously filed with the Department.

A Bidder may submit bids on more Projects than they desire to accept. Each such bid proposal must be covered by a Proposal Guaranty. The Bidder may indicate the total work desired and the Director will determine which of the low bids will be accepted within the Bidder's indicated bid limitations. This limitation will apply only to Projects on which the Bid Limitation Section in the Proposal Form has been completed by the Bidder.

B. **Combination (Tied) Proposals.** Proposal Forms may be issued for Projects in combination or separately, so bids may be submitted either on the combination or on separate units of the combination. The Department reserves the right to make awards on combination bids or separate

bids to the advantage of the Department. Combination bids, other than those specified, will not be considered. Separate Contracts will be written for each Project included in the combination.

C. **Electronic Bidding**. Prior to submitting bids via Bid Express, the Bidder shall obtain a bidder identification number from the Department. The Bidder shall create a digital ID by following the directions on the Bid Express website. The digital ID shall be on file and enabled with Bid Express. Using this digital ID shall constitute the Bidder's signature for proper execution of the Proposal. The Department will not be responsible if Bidder cannot submit bid to Bid Express. Claims will not be accepted based on such failure.

1. Download the EBS files, DBE bin files and any addendums from the Bid Express or Department's Web site.

2. Use Expedite software to generate and prepare the Bidder's Proposal. Provide a unit price for each bid item, except as not required in the case of alternate bid items. Follow the software instructions and review the help screens provided on the Bid Express Web site to assure that the schedule of items is prepared properly.

3. Submit the bid according to the requirements of the Expedite software and the Bid Express Web site.

The Department will consider bids submitted over the Internet as accepted, at the time and date specified in the Notice to Bidders and not before such time and date.

E. **Paper Bids.** Paper bids under this section will only be accepted when the Department indicates that this method is allowed for a specific project. Proposals submitted on paper shall be signed and notarized in ink in the spaces provided on the Proposal Form.

The Bidder shall enter a unit price in numerals on the Bid Schedule for each bid item, except as not required in the case of alternate bid items. The Bidder shall enter the product of each unit price and respective quantity. The sum of the products (Total Sum Bid) shall be entered where indicated.

The paper bid schedule can be a printout generated by the current version of Expedite, used by the Department.

102.08 PROPOSAL GUARANTY.

An annual bid bond, single project bid bond, or certified or cashier's check shall accompany all proposals. Arrangements may be made with the Department to file Proposal Guaranties in advance of the bid opening.

A. Annual Bid Bond. The Bidder shall have a properly executed annual bid bond on file with the Department. An annual bid bond is filed on the Department's form titled Annual Bid Bond (SFN 50231) and applies to all proposals submitted by a Bidder in a calendar year.

Bid Bonds must be a sum equal to 10 percent of the full amount of the bid and must be executed on the Department's form titled Annual Bid Bond (SFN 50231).

B. Single Project Bid Bond. The Department may, upon request, allow for single project bid bond to be filed in advance of the bid opening.

Bid bonds under this section shall be a sum equal to 10 percent of the full amount of the bid executed by the Bidder as principal and by Surety company authorized to do business in North Dakota using the Department's form titled Bid Bond – Single Project (SFN 14196).

C. Certified Check or Cashier's Check. The Department may, upon request, allow a Bidder to file a certified check or cashier's check in advance of the bid opening on a solvent bank in a sum equal to 5 percent of the full amount of the bid.

If the successful bidder fails to sign a Contract with the Department within 10 days after the notice of an award, the Bidder's bid bond or the certified or cashier's check will be forfeited to the Department.

102.09 DELIVERY OF PROPOSALS.

The Bidder shall submit the Proposal Form furnished by the Department before the time and date designated in the Notice to Bidders.

A. Electronic bid on the internet using Bid Express. Bidders utilizing this bid submission method shall not sign, notarize, nor return the Proposal Form as described in other sections of the Specifications.

B. Paper bid on the Proposal Form furnished by the Department. Proposals shall be placed in a sealed envelope bearing the Bidder's name, and plainly marked to indicate its contents.

Proposals received after the time established for opening of Proposals will be returned unopened.

Mailed bids will be accepted, if all other bidding requirements have been met and the bids are received prior to the date and time designated on the Notice to Bidders. If a Proposal Guaranty check is required, as specified in Section 102.08 B, such check must accompany any mailed bid.

102.10 WITHDRAWAL OR REVISION OF PROPOSALS.

A Bidder may withdraw or revise a Proposal after delivery to the Department, provided the request for withdrawal or revision is received in writing before the time established for opening Proposals.

102.11 PUBLIC OPENING OF PROPOSALS.

Proposals will be publicly opened and announced at the time and place indicated in the Notice to Bidders.

102.12 IRREGULAR PROPOSALS.

A. Proposals will be considered irregular and will be rejected if:

1. The Proposal is not electronically signed by use of the digital ID; or in the case of a paper bid, it is not properly signed and notarized.

2. The Proposal is not submitted in accordance with Section 102.07 or Section 102.09.

3. The Bidder fails to provide a properly executed Proposal Guaranty.

4. The Bidder adds any provisions reserving the right to accept or reject an award, or to enter into a Contract pursuant to an award.

This does not exclude a bid limiting the maximum gross amount of awards acceptable to any one Bidder at any one bid opening. Selection of awards will be made by the Department.

B. Proposals may be considered irregular and may be rejected if:

1. The submitted Proposal fails to comply with any other requirements of the "Notice to Bidders" or the issued Proposal itself.

2. There are unauthorized additions, conditional or alternate bids, or irregularities of any kind which may make the Proposal's meaning incomplete, indefinite, or ambiguous.

3. A price per unit cannot be determined from the bid proposal, except in the case of authorized alternate pay items.

4. The Proposal does not include a unit price for every bid item, except in the case of authorized alternate pay items.

5. It is determined that any of the unit prices are materially unbalanced to the potential detriment of the Department.

6. The Unit Prices on paper bids are not typed or entered in ink.

7. The check code printed on the bottom of the printout of the Expedite-generated schedule of items is not the same on each page.

8. There is non-compliance with the Disadvantage Business Enterprise (DBE) requirements.

102.13 DISQUALIFICATION OF BIDDERS.

The Department has the right to disqualify a Bidder after a proposal has been submitted.

A. The following reasons will be considered sufficient for disqualifying a Bidder and rejecting a Proposal or Proposals.

1. Not prequalified in accordance with Section 102.01.
2. Evidence of collusion among Bidders. Participants in collusion will not receive recognition as Bidders for future work with the Department until they are reinstated as a qualified Bidder.
3. More than one Proposal for the same work from an individual, firm, or corporation under the same or different name.
4. Any other reason deemed proper by the Department.

B. The following reasons may be considered sufficient for disqualifying a Bidder and rejecting a Proposal or Proposals.

1. Uncompleted work which the Department determines might hinder or prevent prompt completion of additional work.
2. Failure to promptly pay or satisfactorily settle all claims for labor and material on any Contract, including those Contracts where the Contractor is a party to a joint venture that has failed to settle such claims.
3. Default under previous Contracts.
4. Failure to repay monies due the Department resulting from overpayments.
5. Unsatisfactory performance on previous work or current Contract(s), consisting of, but not limited to, repeated:
   - **a.** Noncompliance with Contract requirements, or Engineer's directives.
   - **b.** Failure to complete work on time.
   - **c**. Instances of substantial corrective work prior to acceptance.
   - **d**. Instances of completed work that requires acceptance at reduced pay.
   - **e.** Production of non-specification work or materials.
6. Questionable moral integrity, as determined by the Attorney General of the State, or the Department.
7. Disbarment from performing work on Federal Contracts.

103.02 AWARD OF CONTRACT **PAGE 26** **5/20/11**

In Section 103.02 delete the second paragraph in its entirety and insert the following:

The successful Bidder shall submit an initial schedule of proposed progress on Department form SFN 7721 within 10 days after the bid opening. The time schedule submitted on the proposed progress chart shall not change the Contract requirements listed in the Proposal Form.

104.06 B SUBMISSION OF THE CLAIM **PAGE 34** **10/15/10**

Delete the first paragraph in Section 104.06 B.2.d.1 in its entirety and insert the following:

(1) Owned Equipment. Payment for the actual hours of Contractor-owned equipment will be 70 percent of the Ownership costs as determined using the procedures outlined in Section 109.04.

Delete the first paragraph in Section 104.06 B.2.d.3 in its entirety and insert the following**:**

Operating Costs. Equipment operating costs will be the equipment operating costs as determined using the procedures outlined in Section 109.04

104.06 B SUBMISSION OF THE CLAIM **PAGE 35** **4/17/09**

In the first sentence of the first paragraph of Section 104.06 B.2.d.1 delete the word “base” in its entirety and insert the word “bare”.

104.06 B SUBMISSION OF THE CLAIM **PAGE 36** **4/17/09**

In Section 104.06 B.3 delete the following phrase in its entirety “that the claim for extra compensation and time, if any, made herein for work on this Contract is a true statement of the actual costs incurred and time sought and is fully documented and supported under the Contract be” and insert the following:

that the claim for extra compensation and time, if any, made herein for work on this Contract is a true statement of the actual costs incurred and time sought and is fully documented and supported under the Contract between the parties.

105.02 CONTRACTOR REQUIREMENTS **PAGE 39** **2/20/09**

In Section 105.02 delete the first paragraph in its entirety and insert the following:

The Contractor shall have one set of approved Plans and Proposal Forms including Special Provisions at the work site at all times.

105.02 CONTRACTOR REQUIREMENTS **PAGE 39** **2/18/11**

In Section 105.02 delete the third paragraph in its entirety and insert the following:

The Contractor shall designate in writing before starting work, a competent Superintendent who shall have the authority to represent and act for the Contractor. The Superintendent shall be a responsible employee of the Prime Contractor. When work is underway, including work by a Subcontractor, the Contractor shall ensure the Superintendent is present at the worksite unless otherwise agreed to by the Engineer.

The Superintendent shall be capable of reading and understanding the Contract Documents and fully authorized to:

A. Conduct all business with the Subcontractors.
B. Execute the orders and directions of the Engineer without delay.
C. Promptly supply the materials, equipment, tools, labor, and incidentals necessary for prosecution of the work.
D. Represent the Contractor at weekly meetings when required in the Contract Documents.

The Contractor shall notify the Engineer promptly in writing when replacing the Superintendent.

105.08 B WORK DRAWINGS SUBMITTED BY THE CONTRACTOR **PAGE 44** **2/20/09**

Delete Section 105.08 B in its entirety and insert the following:

B. **Work Drawings Submitted by the Contractor.** Work drawings, necessary to complete the work, which are supplied by the Contractor shall be submitted to the Engineer prior to the performance of the work. The drawings shall be submitted on sheets no larger than 11 inches by 17 inches unless otherwise allowed by a work item specification.

Each sheet of the work drawings submitted shall be stamped as approved by the Contractor performing the work. At a minimum, the stamp will include the signature and title of the person approving the work drawing and the date of the approval.

The Engineer will review the work drawings as indicated in the plans, proposal, specifications, or other Contract documents. Any submittal and review of work drawings by the Engineer shall not constitute approval of nor acceptance of items represented by such drawings and shall not relieve the Contractor of any responsibility under the Contract. Such responsibility includes, but is not limited to:

1. Successful completion of the work.
2. Errors, omissions, or deviations from the Contract requirements.
3. Accuracy of dimensions and details.
4. Agreement and conformity with the Contract.
5. Proper and safe design done by the Contractor.
6. Proper and safe construction of the work.

In addition to any time requirements which may be specified for a work item, the Contractor shall allow sufficient time for the Engineer to review and comment on the submittal, and the Contractor to respond to the comments, prior to performance of the work. The Contractor shall not change any requirements as shown in the Contract documents without the Engineer's written authorization. A cover letter to be included with each work drawing submittal shall include, at a minimum:

1. The Project Number.
2. Structure Number, if applicable
3. The Prime Contractor name.
4. The Subcontractor name, if applicable.
5. Verification that the work drawings have been reviewed and approved by the Contractor performing the work.
6. The items of work covered in the work drawing. Each item shall be identified by the Specification, code, and description.
7. An itemized list of any deviations from the Contract documents.
8. Any other information as required by the Engineer.

The Contract price will include the cost of furnishing all required work drawings.

The Contractor may submit work drawings by either of the following methods:

a. Paper Submission. Submit cover letter and two copies of work drawings to the Engineer.

b. Electronic Submission. Submit cover letter and one electronic copy of work drawing to the Engineer. All submissions shall follow the requirements of NDAC Title 28. The documents shall be posted to the NDDOT File Transfer Protocol (FTP) website.

- Work drawings shall be submitted in a PDF file format.
- Work drawings shall be submitted on sheets no larger than 11 inches by 17 inches unless otherwise allowed by specification.
- Work drawings shall use the naming convention of: Project Number_Name of Work Drawing.pdf.

Contractor instructions for posting and retrieving files on the FTP Site are as follows:

Step 1: Go to the following website; ftp://ftp.state.nd.us/public/work%20drawings/

Step 2: Contact the Engineer for user name and password.

Step 3: When the "Log On As" box appears, enter user name and password.

Step 4: Click the "Log On" button.

Step 5: Place the work drawing file(s) in the appropriate folder. There is a folder for each month. Work drawings shall be placed in the folder month that corresponds with the date the work drawing is submitted.

Step 6: After uploading work drawings to the FTP Site, notify the Engineer by email that work drawings are on the FTP site.

After the work drawings have been reviewed, the reviewed work drawings will be placed on the FTP Site and an email notification will be sent to the Contractor.

The Contractor shall retrieve the returned work drawings from the FTP Site within 30 days. Files will be deleted from the FTP site after 30 days.

106.02 E AGGREGATE SOURCE LIMITATIONS **PAGE 51** **3/26/10**

In the second sentence of the fourth paragraph in Section 106.02 E delete the webpage address in its entirety and insert the following: **"**http://www.ndhealth.gov/EHS/Erionite/InformationForContractors.htm"

107.02 PERMITS, LICENSES, AND TAXES **PAGE 55** **11/20/09**
3/01/13

Delete Section 107.02 in its entirety and insert the following:

A. **General.** The Contractor shall obtain and submit to the Engineer all permits and licenses; pay all charges, fees, and taxes; and give all notices necessary and incidental to the due and lawful prosecution of the work.

These charges, fees, or taxes may include, but are not limited to, State sales taxes, City sales taxes, and TERO or Indian Reservation taxes or requirements.

No claim shall be made to the Department for reimbursement of these taxes, charges, fees, or for any costs related in meeting TERO or Indian Reservation requirements. All these costs shall be included in the bid prices for the Contract items.

B. State Water Commission. It is the Contractor's responsibility to obtain the necessary permit from the State Water Commission after the Contract has been awarded and prior to obtaining surface or ground water from the water source.

The Application for a Temporary Water Permit (SFN 60158) must be completed and submitted to the State Water Commission by the Contractor to obtain the permit.

The Contractor shall obtain permission for access to the waterway from all affected landowners prior to obtaining surface or ground water from the water source. The Contractor shall submit written permission for access to the waterway from all affected landowners and the Temporary Water Permit to the Engineer prior to obtaining surface or ground water from the water source.

For additional information from the State Water Commission, contact:

State Engineer
North Dakota State Water Commission
State Office Building

900 East Boulevard Ave
Bismarck, ND 58505-0850
(701) 328-2754
swc@nd.gov

C. **United States Army Corps of Engineers Water Permit.** All waterways listed below will require a United States Army Corps of Engineers Water permit in addition to the North Dakota State Water Commission permit. It is the Contractor's responsibility to obtain the necessary permit from the Corps of Engineers after the Contract has been awarded. Corps of Engineers Form 4345 must be completed and submitted to the Corps by the Contractor to obtain the permit prior to obtaining water from the waterways listed:

MISSOURI RIVER - from the Montana-North Dakota state line to the North Dakota-South Dakota state line

YELLOWSTONE RIVER - from the Montana-North Dakota state line to its mouth

UPPER DES LACS LAKE

RED RIVER OF THE NORTH - from Wahpeton, ND, to the Canadian border

BOIS DE SIOUX RIVER - from the South Dakota-North Dakota state line to Wahpeton, ND

JAMES RIVER - from Jamestown, ND, to the North Dakota-South Dakota state line

For additional information from the Corps of Engineers, contact:

Bismarck Regulatory Office
1513 S. 12th St.
Bismarck, ND 58504
Telephone 701-255-0015

D. Storm Water Permits

1. **Authorization to Discharge Under the North Dakota Pollutant Discharge Elimination System (NDPDES).** A Project that requires the Contractor to obtain an NDPDES Permit from the North Dakota Department of Health (NDDOH) as defined in Section 110.04. An application package detailing the steps necessary to obtain the permit, all necessary forms, and the requirements which need to be met to satisfy the permit may be acquired by contacting the NDDOH at:

North Dakota Department of Health
Division of Water Quality
918 East Divide Avenue
Bismarck, ND 58501-1947

Telephone: 701-328-5210

The general permit, forms, and requirements contained in the package are also available on the worldwide web at:

www.ndhealth.gov/WQ/Storm/StormWaterHome.htm

It is mandatory that the Contractor fulfill all requirements as directed by the NDDOH. The Contractor will furnish a copy of the completed application package and, once obtained, the notice of permit coverage to the Engineer.

If, upon written final acceptance of the Project by the Department, the Project area has not met the requirements necessary to file a Notice of Termination in accordance with Notice of

Termination Section of the Permit, the Contractor will fulfill the requirements outlined in the Transfer of Ownership or Control Section of the Permit.

2. **General Permit for Storm Water Discharges from Construction Activities (CGP).** A Project that requires the Contractor to obtain a permit from the Environmental Protection Agency (EPA), Region 8 as defined in Section 110.04. An application package detailing the steps necessary to obtain the permit, all necessary forms, and the requirements which need to be met to satisfy the permit may be acquired by contacting the EPA, Region 8 at:

   Region 8 Storm Water Coordinator
   U.S. Environmental Protection Agency, (80C-EISC)
   1595 Wynkoop Street
   Denver, CO 80202-21129

   Telephone: 1-800-227-8917 ext. 6082

   The forms and requirements outlined in the package are also available on the worldwide web at:

   www.epa.gov/region8/water/stormwater/construction.html#applying

   It is mandatory that the Contractor fulfill all requirements as directed by the EPA, Region 8. The Contractor will furnish a copy of the completed application package and, once obtained, the notice of permit coverage to the Engineer.

If, upon written final acceptance of the project by the Department, the Project area has not met the requirements necessary to file a NOT in accordance with Section V.5, “Termination of Coverage” of the Permit, the contractor will fulfill the requirements outlined in Section VI.3, “Reporting Requirements – Permit Transfers” of the Permit.

107.04 ENVIRONMENTAL PROTECTION AND CULTURAL RESOURCE PRESERVATION RESPONSIBILITIES **PAGE 56** **10/16/09**

Delete Section 107.04 in its entirety and insert the following:

A. General

Department-Owned/Optioned Areas, or Contractor-Optioned Areas includes but is not limited to material source locations (aggregate, borrow, rip-rap), haul roads/cartways, stockpile locations, plant sites, processing and staging areas, and waste sites. Cultural and Environmental reviews will be conducted and upon satisfactory completion a Certificate of Approval (COA) will be issued and posted to the website. All conditions listed on the COA for an area must be followed.

1. **Department-Owned or Optioned Areas.** Department-Owned or Optioned Areas are defined as any location, identified in the plans, which may be utilized by the Contractor. All COA’s will be posted to the website and included in the bidder’s proposal unless otherwise stated in the plans. COA’s do not need to be reprinted at the time of construction for an area that is included in the plans or bidders proposal.

2. **Contractor-Optioned Areas.** Contractor-Optioned Areas are defined as any location, not identified in the plans, which may be utilized by the Contractor. Prior to utilizing a Contractor-Optioned Area, the Contractor shall provide the Engineer with a COA for each Contractor-Optioned Area.

a. COA for all approved locations can be found at http://www.dot.nd.gov/. A COA will state the current year of approval.

b. If a site has not been previously approved the Contractor shall submit, at least 30 days prior to utilizing a site, a completed SFN 58466 and map that clearly identifies all proposed Contractor-Optioned Areas. Requests shall be submitted electronically at materialsource@nd.gov or mailed to the Department's Environmental and Transportation Services Division for review. Upon completion of the review process the Contractor will be notified of the findings from the Department. If any additional information is required, the Contractor-Optioned Areas may not be utilized until a COA has been issued by the Department. The completion of the review process may take longer than 30 days; surveys cannot be completed during adverse weather conditions or poor visibility and may require consultation with resource agencies.

B. Material Source Approval Process. The Contractor is responsible for all costs associated with Section 106 (NHPA) compliance, including Class III cultural resource inventory, testing, and data recovery for Contractor Optioned Areas. The Contractor will not receive payments or compensation for delays resulting from the Department review. Discoveries will be handled in accordance to Section 107.04.D.

If cultural resource work is recommended for a proposed Department-Owned/Optioned and/or Contractor-Optioned Area that is located on Indian Trust (allotted) lands, an Archaeological Resources Protection Act (ARPA) permit must be obtained from the Bureau of Indian Affairs (BIA) prior to this work beginning. The Contractor shall obtain written permission from the property owners and the tribe before the BIA will issue the ARPA permit. The Department will not be responsible for, nor participate in, costs that are incurred or claimed by the Contractor resulting from delays or other inconvenience encountered in obtaining the permit.

The Department's review and subsequent independent completion of the Section 106 (NHPA) process will not relieve the Contractor of the responsibility of complying with all Federal and State laws and regulations which govern the discovery of human remains and the salvage and preservation of cultural resources that are discovered during material source operations.

C. Out of State Sources. If the Contractor-Optioned Area is located out of state, the Contractor must provide the Department documentation showing the Contractor-Optioned Area is available for use according to each state's review process when submitting the Contractor-Optioned Area for approval. The Contractor-Optioned Area may not be utilized until a COA has been issued by the Department.

D. Discoveries. When the Contractor is operating within the Right of Way, easement areas, or within Department-Owned/Optioned and/or Contractor-Optioned Area and encounters a threatened or endangered species at the project site, work at that location shall be temporarily discontinued. The Contractor shall report the sighting immediately to the Engineer and shall not resume work until the Department obtains clearance from the U.S. Fish and Wildlife Service and approval to proceed is provided in writing from the Department.

If the Contractor encounters prehistoric dwelling sites, human remains, or concentrated historic or prehistoric artifacts, work at that location shall be temporarily discontinued. The Contractor shall inform the Engineer immediately of the discovery and shall protect the discovery area from further disturbance until directed otherwise by the Engineer. The Contractor shall not resume work in the vicinity of the discovery until approval to proceed is provided in writing from the Department.

If cultural resources are discovered, procedures identified in 36 CFR 800.13 will be followed. If the discovery includes human remains, the procedures in North Dakota Administrative Rule 40-02

in accordance with State Law 23-06-27, or 43 CFR Part 10 in accordance with Public Law 101601 will be followed, as applicable and defined in each.

In both instances, should the contractor fail to notify the Engineer within 24 hours of the sighting or discovery, the Contractor shall be liable for all standby costs, all damage incurred, and all costs associated with the preservation and protection of the species pursuant to the resource and regulatory agencies guidance or with salvage and preservation activities that may result from the discovery. In addition, the Contractor is liable to the Department for any violation penalties because of the failure to comply with Federal and State laws.

E. **Reporting.** The Contractor is responsible for complying with all reporting requirements contained in the regulatory permit(s). Documentation of all reporting pursuant to the conditions of the permit(s) shall be submitted to the Engineer.

107.05 B HAUL ROADS **PAGE 61** **4/17/09**

In last sentence of the third paragraph in Section 107.05 B.1 delete the first repeated word “the” in its entirety.

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107 LEGAL RELATIONS AND RESPONSIBILITIES **PAGE 69** **2/20/09**

Insert the following Section after Section 107.10:

107.11 HIGH VISIBILITY CLOTHING

When not enclosed in a truck or equipment cab all workers within the Right of Way must wear retro reflective clothing that meets the most current ANSI/ISEA 107 Performance Class 2 or Class 3 requirements.

Retro reflective clothing shall the outermost garment worn, in a clean condition, and closed in both front and rear. Open vests will not be allowed. Retro reflective clothing shall be replaced as necessary to maintain visibility and reflectivity.

108.01 B PROGRESS SCHEDULE **PAGE 70** **5/20/11**

Delete Section 108.01 B in its entirety and insert the following:

B. **Progress Schedule.** The Contractor shall provide sufficient materials, equipment, and labor to guarantee completion within the time established in the Contract. The Contractor shall submit a detailed progress schedule to the Engineer at least ten calendar days prior to the preconstruction conference. The progress schedule shall be used to establish the critical construction operations and to monitor progress of the work.

Unless the Contract requires a CPM Schedule, the Contractor shall provide a progress schedule in the form of a time-scaled bar chart and narrative meeting the following minimum requirements:

1. Define activities that describe the essential features of the work, activities that might delay Contract completion, activities related to procurement of significant materials and equipment, and other critical activities.

2. The planned start and completion dates for each activity, the duration of each activity, and the sequencing of all activities.

3. Dates related to the submission of shop drawings, plans and other data specified for review or approval by the Department.

4. Dates related to utility adjustments and other third party activities.

5. Number of work days planned per week, the number of hours planned per work day, major equipment planned, and planned activity production rates per work day.

The Contractor shall submit an updated progress schedule once every month. At a minimum, updates will include the actual start and finish of each activity, percentage complete, and remaining durations of activities started but not yet completed. Additional updates may be required when critical activities fall behind schedule more than 14 calendar days or when requested by the Engineer.

No work shall be started until the progress schedule is acceptable to the Engineer. The Engineer will accept or reject the progress schedule based solely on completeness. Acceptance of the progress schedule does not modify the Contract or constitute endorsement or validation by the Engineer of the Contractor's logic, activity durations, or assumptions in creating the schedule. Failure to provide a progress chart may result in withholding Contract payments until a progress chart or required updates to the progress have been submitted.

108.01 C CRITICAL PATH METHOD (CPM) SCHEDULE **PAGE 70** **10/16/09**
2/19/10
3/26/10

Delete Section 108.01 C in its entirety and insert the following:

C. **Critical Path Method (CPM) Schedule.** When specified, and within the required time frames, a Critical Path Method (CPM) schedule in the specified form shall be submitted. The schedule will be used for coordination, monitoring, and payment of all work under the Contract including all activity of Subcontractors, vendors, and suppliers.

1. The construction of this Project will be planned and recorded with a conventional (CPM) schedule in the form of an activity on arrow diagram or an activity on node diagram. The Contractor shall use *Primavera Project Planner (P3) version 6.1* for Windows to develop and maintain the CPM schedule. This schedule shall be prepared by the Contractor to develop a sequential order of work activities and to determine how rapidly these activities should be prosecuted in order for the Contractor to complete the Project on time. The owner's review and acceptance of the Contractor's Project Schedule is for conformance to the requirements of the Contract documents only. Review and acceptance by the owner of the Contractor's Project Schedule does not relieve the Contractor of any of its responsibility whatsoever for the accuracy or feasibility of the Project Schedule, or of the Contractor's ability to meet the interim project milestone dates and the Contract completion date, nor does such review and acceptance expressly or impliedly warrant, acknowledge or admit the reasonableness of the logic, durations, manpower, or equipment loading of the Contractor's schedule.

2. Within 15 calendar days after start of work, the Contractor shall submit a CPM schedule for the entire project that meets all requirements set forth in paragraph 3 below. The construction time for the entire Project or any milestone, shall not exceed the specified Contract time.

   Milestone date or Contract completion date shall not be exceeded in the initial CPM schedule, logic, and/or time estimates.

   If a CPM schedule is required to be resubmitted, the Contractor shall resubmit the CPM schedule within 5 calendar days.

3. **CPM Schedule Requirements:** The CPM schedule shall be in the form of an activity on arrow diagram, an activity on node diagram, or approved equal. All diagrams shall include; activity nodes, activity descriptions, activity durations, activity start and finish dates, and float. The diagram shall show the sequence and interdependence of all activities required for complete performance of all items of work under this Contract, including work drawing submittal and approvals and fabrication and delivery activities. All relationships shall be finish to start, finish to finish, start to finish, or start to start. All network "dummies" are to be shown on the diagram. Only one critical path shall be shown on the diagram.

   No activity duration shall be longer than 15 working days without the Engineer's approval. The Engineer reserves the right to limit the number of activities on the CPM schedule.

   The activities are to be described so that the work is readily identifiable and the progress of each activity can be readily measured. For each activity, the Contractor shall identify the entity performing the work, the duration of the activity in working days, the manpower involved, the equipment involved, and the location of the work.

   Any diagram submitted by the Contractor shall be electronically created. The network must be legible and self explanatory. Network diagrams will be on appropriate sized sheets of paper clearly showing all diagram details.

   The initial CPM schedule, resubmittals, and all updates, the Contractor shall provide the following:

   a. Sorts by:

      (1) I-J (Beginning & Ending node no.) or Activity ID

      (2) Total Float

      (3) Early Start

   b. A narrative including the following:

      (1) The progress to date on the Project.

      (2) A description of each active critical path activity which includes the following:

         (a) Time expired of the activity duration.

         (b) An estimate of percent complete.

         (c) The method by which an activity that is behind schedule will be returned to the original schedule. The method shall be in terms of construction method, equipment, manpower, or hours.

      (3) A description of the work required up to the next update.

      (4) Any inputs that differ from the original CPM schedule such as: the work days per week, holidays, number of shifts per day, number of hours per shift, and major equipment used.

      (5) Detail explanation of all changes to the CPM schedule.

   c. Three copies of each of the above.

d. An electronic copy of the schedule file on a standard compact disc.

4. **Schedule Updates:** An updated CPM schedule shall be submitted every 14 calendar days from the date the initial CPM is due or from the date any work activity begins on the project, whichever is later. Job site progress meetings will be held every week by the Contractor and the Engineer for the purpose of reviewing the CPM schedule. Progress will be reviewed to verify the dates activities were completed, remaining duration of uncompleted activities, and any proposed logic and/or time estimate revisions.

   The Contractor shall revise CPM diagrams for any one of the following:

   a. Delay in completion of any critical activity.

   b. Actual prosecution of the work which is different than that represented on the schedule.

   c. The addition, deletion, or revision of activities.

   The CPM revision shall be due within two weeks of any of the above such occurrences.

   A Contract modification or delay may result in absorbing a part of the available total float that may exist within an activity chain on the network, thereby not causing any effect on any interim milestone date or the Contract Completion Time.

   It is understood by the Engineer and the Contractor that float is a shared commodity. Total float is defined as the amount of time between the early start date and the late start date, or the early finish date and the late finish date, for each and every activity in the schedule. Float is not for the exclusive use or benefit of either the owner or the Contractor. Extensions of time to interim milestone dates or the Contract Completion Time under the Contract will be granted only to the extent that the equitable time adjustments to the activity or activities affected by the Contract modification or delay exceeds the total float of the affected activity or subsequent paths and extends any interim milestone date of the Contract Completion Time.

   Activity delays shall not automatically mean that an extension of the Contract Completion Time is warranted or due the Contractor. A Contract modification or delay may not affect existing critical activities or cause non-critical activities to become critical.

   The principles involved and terms used in this Section are as set forth in the Associated General Contractors of America publications, “The Use of CPM in Construction, A Manual for General Contractors and the Construction Industry,” latest edition, and “Construction Planning and Scheduling,” latest edition.

5. **Method of Measurement:** The unit of measure for the CPM schedule, including all required revisions, shall be “Lump Sum.”

6. **Basis of Payment:** Payment will be made at the Contract Unit Price for the following:

Pay Item	**Pay Unit**
Critical Path Method Schedule	Lump Sum

   The Contractor will receive 20 percent of the Lump Sum price bid when the initial CPM schedule is accepted as meeting the requirements of this specification, and will receive prorated payments for the remainder of the bid price, based on the number of bimonthly payments anticipated during the Contract. The prorated payments may be adjusted to compensate for any approved adjustments to the completion date.

Failure to submit a CPM schedule that meets the Contract requirements within 60 days after the Contract execution will result in withholding all or any part of the Contract payments until the CPM schedule is finalized.

Failure to submit a CPM schedule update to the Engineer within two calendar days of its due date, will result in a Contract Unit Price Adjustment. The adjustment will be a 10 percent deduct of the CPM Schedule bid item for each update that is late. Failure to submit a revised CPM schedule as specified may also result in withholding all future Contract payments until the revised schedule is submitted. The revisions shall include all activities.

Payment will be full compensation for the CPM schedule, diagrams, updates, and progress meetings as necessary to complete the work.

108.04 G REQUEST FOR ADDITIONAL TIME **PAGE 75** **7/17/09**

In Section 108.04 G in the fifth sentence delete the duplicate word “the” in its entirety.

108.04 J FAILURE TO COMPLETE ON TIME **PAGE 76** **10/16/09**
10/19/12

In Section 108.04 J delete the Schedule of Liquidated Damages Table following the first paragraph in its entirety and insert the following:

Original Contract			**Amount Liquidated Damages**	
Over - To & Including			Calendar Day	Working Day
$0	-	$100,000	$350	$400
$100,000	-	$250,000	$700	$800
$250,000	-	$500,000	$900	$1,100
$500,000	-	$1,000,000	$1,100	$1,400
$1,000,000	-	$3,000,000	$1,500	$1,900
$3,000,000	-	$5,000,000	$1,900	$2,300
$5,000,000	-	$8,000,000	$2,200	$2,800
$8,000,000	-	$12,000,000	$2,500	$3,300
$12,000,000	-	$18,000,000	$3,000	$3,800
$18,000,000	-	Up	$3,500	$4,400

109.01 MEASUREMENT OF QUANTITIES **PAGE 79** **10/15/10**

Delete Section 109.01 M in its entirety and insert the following**:**

M. Payment for equipment rental will be made according to rates and instructions listed in Section 109.04.

109.04 C EQUIPMENT **PAGE 83** **10/15/10**

Delete Section 109.04 C in its entirety and insert the following**:**

C. **Equipment.** Payment for use of authorized equipment and additional traffic control devices required by the Force Account work will be based on rental rates determined according to the "Rental Rate Blue Book" published by the Equipment Watch section of Penton Media, Inc. Rates will be determined using this method for both rented equipment and owner operated equipment. Rates determined shall be agreed to the in writing on the standard agreement form furnished by the Department. No percentage will be added to these rates. The equipment rental rates will be calculated as follows:

$$\text{Hourly Equipment Rental Rate} = \frac{\text{Monthly Ownership Costs} \times \text{Regional Adjustment Factors}}{176} + \text{Operating Costs}$$

1. Attachments and Accessories. Except as otherwise noted in the "Rental Rate Blue Book", no additional payment (over the rate established for the basic machine) will be allowed for power control units, accessories required to comply with OSHA regulations, and other attachments or accessories required for normal operation of the equipment.

2. Equipment may be ordered to stand-by for the convenience of the State. Payment for approved stand-by time will be made at the rate of 50 percent of the ownership costs, not to exceed 8 hours per day nor 40 hours per week.

3. When equipment is required for Force Account work is not available at the site, "move-in" and "move-out" charges will be allowed for the cost of delivering the equipment to the site if the work and returning it to its original location, subject to the following provisions:

   a. The original location of the equipment shall be agreed to by the Engineer in advance of "move-in". If the Contractor elects to keep the equipment on the project for use other than the Force Account work, no "move-out" charges will be allowed. If the Contractor elects to return the equipment to a site other than the original location, actual "move-out" charges are allowed, but not to exceed "move-in" costs.

   b. Transportation charges for equipment hauled by the Contractor will generally be based on the established hourly rates for the transporting equipment and labor, but not to exceed the cost for which the equipment can be transported by established haulers. If an established hauler is used to mobilize equipment, payment will be made on invoice. During transport, a rental rate not exceeding 50 percent of the Ownership costs as determined from the Blue Book, will be allowed on the equipment being transported. Transportation charges will include loading and unloading.

   c. If the operator of the equipment is moved onto the project with the equipment and is on the project only for the duration of the Force Account work, the operator's salary for mobilization will be included in the Force Account payment upon proof of payment by the Contractor.

109.05 PARTIAL PAYMENT. **PAGE 84** **2/20/09**

In Section 109.05 A delete the third paragraph in its entirety and insert the following:

109.05 A PARTIAL PAYMENT.

From the total amounts payable, 2 percent of the whole will be deducted and retained by the Department. The balance of 98 percent, less all previous payments, will be certified for payment. Once 2 percent of the total Contract price is retained, the balance of total amounts payable less all previous payments and retainage will be certified for payment.

110.04 STORM WATER PERMITS. **PAGE 89** **11/20/09**

Delete Section 110.04 in its entirety and insert the following:

Any project with a contiguous area of disturbance of one acre or more requires a NDPDES construction permit or a CGP on Tribal Land. Projects that have multiple individual sites of activity will require a permit, if the sum of the combined individual sites has an area of disturbance of one acre or more.

The Contractor of each new project, meeting the criteria above, shall be required to obtain the appropriate stormwater general permit coverage from either the NDDOH, EPA, or both by completing the permit coverage application process. The NDDOH and the Department have developed a Memorandum of Agreement outlining procedures for NDPDES construction permits as they relate to Department projects. A copy of the MOA can be found at http://www.ndhealth.gov/WQ/Storm/Construction/ConstructionHome.htm.

All procedures outlined in the EPA's CGP must be followed as defined by the EPA CGP.

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151 GENERAL EQUIPMENT **PAGE 99** **10/21/11**

Insert the following in Section 151:

151.09 MICRO SURFACING AND SLURRY SEAL EQUIPMENT.

A. Mixing Equipment. The equipment shall be self-propelled and specifically designed and manufactured to lay Micro Surfacing or Slurry Seal Coat. The mixing machine shall be a continuous flow unit able to accurately deliver and proportion the aggregate, emulsified asphalt, mineral and field control additives, and water to a revolving multi-blade twin shafted mixer and discharge the mixed product on a continuous flow basis. The machine shall have sufficient storage capacity for aggregate, emulsified asphalt, mineral and field control additives, and water to maintain an adequate supply to the proportioning controls. The machine may be equipped with self-loading devices which provide for the loading of materials while continuing to lay Micro Surfacing or Slurry Seal Coat.

B. Proportioning Devices. Individual volume or weight controls for proportioning each material to be added to the mix shall be provided and properly marked.

C. Emulsion Pumps. The emulsion pump shall be a heated positive displacement type.

D. Spreading Equipment. A mechanical type spreader box shall be attached to the mixer. The spreader box shall be equipped with paddles to agitate and spread the materials throughout the box. The surfacing mixture shall be spread uniformly by the spreader box. A front seal shall be provided to ensure no loss of the mixture at the road contact point. The rear seal shall act as final strike off and shall be adjustable. The spreader box and rear seal shall be designed and operated to achieve a uniform consistency and to produce a free flow of material to the rear seal. The spreader box shall have suitable means provided to side shift the box to compensate for variations in pavement width and longitudinal alignment. The spreader box shall also be hinged near the center to compensate for a quarter crown.

E. Rut box. A Rut Box shall be used only for Micro Surfacing. A Rut Box shall be available to pre-fill wheel ruts, when necessary, prior to overlay. The box shall be commercially designed and manufactured with hydraulically adjusted strike off screeds to attain maximum grade and profile. The Rut Box shall be five feet in width and capable of an inverted or regular crown.

151.07 SCALES **PAGE 104** **10/19/12**
11/01/12

Delete Section 151.07 in its entirety and insert the following:

151.07 Scales

A. General.

Materials measured and paid for by weight shall be weighed on a certified scale. The Contractor shall provide a person to operate the scale, issue weigh tickets, perform scale verifications, and prepare tare weight reports and daily haul summaries.

The Contractor is responsible for meeting legal load limits. Scales shall:

1. Be certified by a scale service company registered with the North Dakota Public Service Commission. The certification must have been performed within 9 months prior to use on the project.
2. Be accurate to within 1.0 percent of the true weight of the applied load throughout the range of use.

B. Scale Applications.

1. **Computerized Scales**.
   - **a.** Shall be equipped with a digital readout and computer capable of producing weigh tickets and daily haul summaries.
   - **b.** Shall be used to determine the weight of a material when the estimated quantity of the pay item is more than 2,000 tons.

2. **Computerized Loader Bucket Scales.**
   - **a.** Shall be equipped with an onboard computer capable of producing weigh tickets.
   - **b.** May be used to weigh materials with estimated quantities in excess of 2,000 tons, but shall not be used to weigh materials when the estimated quantity of a pay item is over 10,000 tons.
   - **c.** May be used to weigh aggregates specified under Sections 420, 421, and 422 regardless of quantity.

Computerized or non-computerized scales may be used to weigh materials when the estimated quantity is less than 2,000 tons.

C. Types of Scales.

1. **Platform Scales.**

   Platform Scales shall be equipped with a platform of sufficient length to allow all axles of the longest truck or truck-trailer combination used on the project to be weighed simultaneously.

   The Contractor shall determine the daily tare weight of each truck before it hauls its first load. Trucks shall be fully fueled when determining the tare weight.
   Platform Scales shall be verified before first use and any time the scale is recertified by performing the Zero Load Test, the Comparison Test, the Sensitivity Test, and the Shift Test.

2. **Hopper or Batch Scale.**

   Hopper or Batch scales shall use a load cell or cells.

   Hopper or Batch scales shall be verified before first use and any time the scale is recertified by performing the Zero Load Test, the Comparison Test, and the Sensitivity Test.

3. **Computerized Loader Bucket Scale.**

   Loader Bucket Scales shall be verified by performing the Comparison Test before first use and any time the scale is recertified.

D. Verification Tests.

The Engineer shall verify the scale's accuracy by observing the Contractor check the scale using the applicable verification tests before its first use and as necessary. If the scale is not within the required tolerance the scale shall be recertified by a registered scale service company and must be verified before it will be allowed to be used on the project.

Scale verification may be waived by the Engineer if the proposal quantity of a material multiplied by the unit bid price has a value less than $10,000.00.

1. Zero Load Test.

When no load is on the scale the scale shall be adjusted to balance or to read zero.

2. Comparison Test.

a. Platform Scales.

The comparison test can be performed by one of the following methods:

i. The Engineer will randomly select a loaded truck weighed on the project scale. The Contractor shall weigh the randomly selected truck on an independent certified scale operated by another contractor or business.

ii. A piece of equipment that has been certified as to weight shall be weighed on the project scale. The piece of equipment shall weigh at least 60 percent of the maximum weight which will be applied to the scale during the Project. The certification shall consist of an affidavit affirming the true weight of the piece of equipment. The piece of equipment shall be clean of mud and dirt and shall be fully refueled each time it is used for the weight comparison. Recertification shall be required when any changes, such as wheel weights and ballast are made that will affect the certified weight.

When a certified weight is used to make comparison tests, loaded truck weight comparisons shall be made on an independent certified scale for the first two days and once a month thereafter.

b. Hopper or Batch Scales

Perform the test by comparing the weight of the material in the hopper and the weight of the material after it has been weighed on an independent certified scale operated by another contractor or business.

c. Computerized Loader Bucket Scales.

At the beginning of the first day of production, the Contractor shall perform a comparison test by one of the following methods:

i. The Contractor shall weigh the load placed in a truck and compare the weight of the same load on an independent certified scale. Load the trucks using the loader scale in dynamic mode. The loading area shall be level. Operation of the loader scale shall be as recommended by the manufacturer.

ii. A certified weighted object. The Contractor shall weigh the certified weighted object and compare its weight to the loader bucket scale readout. The weighted object shall weigh at least 60 percent of the capacity of the loader bucket. The Contractor shall have the weighted object certified by a certified scale service. The weighted object shall have a plate showing the certified weight welded to it. The weighted object shall be clean of mud and dirt. Recertification of the object will be required when any changes are made that will affect the certified weight or at the Engineers request.

The difference between the weight determined by the scale and the independent scale or certified weight shall be 1.0 percent or less.

3. Sensitivity Test.
A sensitivity test shall be made by weighing a representative load, then adding 100 pounds of test weights. If the scale is not sensitive to the added weight, the scale shall not be used on the project until it has been repaired.

4. Shift Test (Platform Scales only).
The performance of the scale with off-center loading shall be checked by comparing the results obtained by weighing a loaded truck with the:

a. Rear wheels at the extreme end of the scale platform;
b. Position of the truck is then reversed with the rear wheels at the extreme opposite end of the platform; and
c. Truck is centered on the scale platform.

Recertify the scale if the results of any two positions differ by more than 0.2 percent from one another.

E. Random Comparison Tests
Once production begins Random Comparison Tests shall be conducted at the frequency specified to demonstrate the continued accuracy of the scale. If a comparison test reveals a scale is out of tolerance, use of the scale shall be discontinued until the scale is repaired and has been recertified by a registered scale service.

The Engineer may require the scale to be checked for accuracy at any time by the method he chooses.

1. Platform Scales
The truck and material weight shall be checked by performing a comparison test according to Section D.2.a of this provision.

One test shall be conducted for each 5,000 tons weighed except when more than 5,000 tons are weighed in a day. When more than 5,000 tons is weighed in a day one test will be required for that day's production.

2. Batch and Hopper Scales
The truck and material weight shall be checked by performing a comparison test according to Section D.2.b of this provision.

One test shall be conducted for each 5,000 tons weighed except when more than 5,000 tons are weighed in a day. When more than 5,000 tons is weighed in a day one test will be required for that day's production.

3. Computerized Loader Bucket Scales
The truck and material weight shall be checked by performing a comparison test according to Section D.2.c of this provision.

A daily comparison test of the loader bucket scale shall be conducted by the Contractor. The Contractor shall record the results of the test and provide a signed copy to the Engineer for each scale used. The Engineer may prohibit use of loader bucket scales if two consecutive tests fail.

F. Documentation

1. **General.**
   a. **Computerized Scales.**
   Computer generated weigh tickets shall be produced. Computer generated daily haul summaries shall be produced using the same computer, software, and-data that produced the individual weigh tickets. Haul summaries shall be submitted to the Engineer.

   Notify the Engineer if the computer or printer malfunctions. If this occurs non- computerized weighing and recording will be permitted, but will not be allowed for more than 2 consecutive work days.

   b. **Computerized Loader Bucket Scales.**
   Weigh tickets shall be generated by the onboard computer and printer of the loader bucket scale. Daily haul summaries may be produced by hand or computer generated spreadsheet.

   c. **Non-Computerized Scales.**
   When non-computerized scales are used, a scale person shall generate the weigh tickets. Daily haul summaries may be produced by hand or computer generated spreadsheet.

2. **Trucks and Weigh Tickets**
   The Contractor shall produce a minimum of two copies of each ticket with a maximum size of 5½ × 8½ inches. All copies of the tickets produced shall be legible.

   The weight of each load shall be documented on a separate, sequentially numbered weigh ticket. One copy of the ticket shall be provided to the truck driver. The truck driver shall deliver the weigh ticket in legible condition to the Engineer at the location where the material is incorporated into the work. Loads without a legible ticket will be rejected.

   Each truck to be weighed must have a unique identification number. This number must be legible and in plain view of the scale operator. Each truck driver must obtain a weigh ticket from the scale operator. At a minimum, all tickets must contain the following information:

   a. Ticket Number
   b. NDDOT project number or NDDOT Project Control Number (PCN)
   c. Delivery date
   d. Contractor and Subcontractor if applicable
   e. Time of weighing
   f. Identification number of truck
   g. Material type identified by pay item name
   h. Unit of measure
   i. Weight delivered:
      1. Net weight for batch, hopper, and loader bucket scales
      2. Gross weight, tare weight and net weight for platform scales
   j. Scale person's signature for manually produced tickets

3. **Daily Haul Summaries.**
   Each material shall have a haul summary which includes the following:

   a. NDDOT project number or NDDOT PCN (whichever is used on the weigh tickets)
   b. Delivery date
   c. Contractor and Subcontractor if applicable
   d. Pit location and owner
   e. Identification number of truck

f. Each load's net weight and ticket number, with justification for out of sequence numbers
g. Material type identified by pay item name
h. Total weight of material delivered to the project
i. Weight of material voided for the day
j. Weight of the day's production
k. A signed statement from the Contractor attesting to the accuracy and completeness of the facts represented. A signed statement from a subcontractor or supplier attesting to the accuracy and completeness of the facts represented is required if they operate the scales. The following language shall be included: "I certify the Daily Haul Summary is true, accurate, and complete."
l. Blank for the Engineer's signature. The following language shall be included: "I certify the Daily Haul Summary has been reviewed, corrected as necessary, and approved."
m. Place for remarks

G. Basis of Payment

If a comparison test reveals a scale is overweighing, the payment for all material weighed since the last accepted test under Section E of this provision shall be adjusted. The Engineer will calculate the weight of all materials weighed after the last test showing accurate results. This weight will be reduced for payment by the percentage of scale error that exceeds 1.0 percent. The Contractor shall not be compensated for any loss from underweighing.

The Department will pay for materials on the basis of daily haul summaries produced by the Contractor and approved by the Engineer. Payment will be based on individual weigh tickets when daily haul summaries are not generated using the same computer, software, and data.

All costs to perform the work will be included in the bid price for the item being weighed.

202.02 E REMOVAL OF PAVEMENT, SIDEWALKS, CURBS, ECT. **PAGE 134** **2/18/11 3/18/11**

After the second paragraph in Section 202.02 E insert the following paragraph:

The reinforcing steel removed from the existing concrete pavement shall become the property of the Contractor. The Contractor shall not be permitted to stockpile the reinforcing steel on the highway Right of Way.

After the last sentence of fourth paragraph in Section 202.02 E insert the following sentence, "When no bid items are included, the removal of manholes and inlets shall not be paid for separately but shall be included in the price bid for installation of manholes and inlets."

202.03 METHOD OF MEASUREMENT **PAGE 135** **3/18/11**

After the second paragraph in Section 202.03 insert the following paragraph:

The reinforcing steel will be included in the total weight when concrete pavement is paid for by the ton.

202.03 METHOD OF MEASUREMENT **PAGE 135** **1/1/12**

In Section 202.03, insert the following paragraph after the first paragraph:

Removal of pipes will be measured by the Linear Foot along the top of the pipe. Flared end sections will not be measured separately but will be considered as part of the pipe. Each conduit will be measured to the nearest foot.

202.04 BASIS OF PAYMENT **PAGE 135** **1/1/12**

In Section 202.04 following the pay item "Removal & Salvage of _____Surfacing" insert the following pay item and pay unit:

Pay Item	**Pay Unit**
Removal of Culvert, All Types and Sizes	Linear Foot
Removal of Pipe, All Types and Sizes	Linear Foot

Insert the following at the end of Section 202.04:

Flared end sections will not be paid for separately but will be considered as part of the pipe or culvert.

203.02 CONSTRUCTION REQUIREMENTS **PAGE 137** **2/19/10**

Insert the following Sections following Section 203.02 I:

J. **Guardrail Embankment, Type C.** Topsoil for excavation and embankment areas shall be in accordance to Section 203.02 B. Embankment material shall be in accordance with Section 203.02 I. Seed mixture shall be Class II and Class VI. Seeding and mulching shall be in accordance with Section 708.02. Existing drainage shall be maintained.

K. Slope Reconstruction. Topsoil for excavation and embankment areas shall be in accordance to Section 203.02 B. Embankment material shall be in accordance with Section 203.02 I. Seed mixture shall be Class II and Class VI. Seeding and mulching shall be in accordance with Section 708.02.

1. **Approach Inslope Reconstruction**. Approach inslope reconstruction with a slope steeper than 6:1 shall be flattened to an 8:1 slope.
2. **Ditch Block Slopes.** Ditch Block slopes with a slope steeper than 8:1 shall be flattened to an 10:1 slope.

Delete the title of the following Section 203.02 J in its entirety and insert the following:

L. Haul.

Delete the title of the following Section 203.02 K in its entirety and insert the following:

M. Finishing.

Delete the title of the following Section 203.02 L in its entirety and insert the following:

N. Provision for Traffic Maintenance.

203.02 C SUBCUT **PAGE 138** **2/18/11**

In the second paragraph in Section 203.02 C after the first sentence insert the following sentence, "The bottom of the subcut shall not be scarified".

203.02 E.1 GENERAL **PAGE 139** **7/1/12**

After the second paragraph in Section 203.02 E.1 insert the following paragraph:

The Contractor shall place the borrow material in the embankment locations as specified in Section 203.02 F. The Contractor shall compact the borrow material in the embankment locations as specified in Section 203.02 G.

203.02 E.3 CONTRACTOR-FURNISHED BORROW **PAGE 141** **1/1/12**

Delete the third paragraph in Section 203.02 E.3 in its entirety and insert the following:

> After the borrow area has been restored to satisfactory condition, the Contractor shall obtain a release and receipt of payment from the landowner and furnish copies to the Department.
>
> All costs for borrow furnished by the Contractor shall include but not restricted to, royalty payments, removal and replacement of topsoil, erosion control, reshaping and scarifying, obliterating cartways, crop damage, seeding, and any overhaul shall be included in the price bid for "Borrow Excavation".

203.02 G CONSTRUCTION OF EMBANKMENT AND TREATMENT OF CUT AREAS WITH COMPACTION CONTROL, TYPE A. **PAGE 142** **10/17/08 2/20/09**

In Section 203.02 G delete the second paragraph in its entirety and insert the following:

AASHTO T 180 shall be used for all density testing, unless specified in the plans.

In the first sentence of the third paragraph, after the phrase "determined using AASHTO T 99," insert the following "as specified on the plans,"

203.03 METHOD OF MEASUREMENT **PAGE 144** **2/19/10**

Insert the following Section:

J. Slope Reconstruction. Approach inslopes and ditch block slopes will be measured as a unit for each inslope that is flattened.

Delete the title of the following Section 203.03 J in its entirety and insert the following:

K. Urban Project Provision.

Delete the title of the following Section 203.03 K in its entirety and insert the following:

L. Seeding.

203.02 L PROVISION FOR TRAFFIC MAINTENANCE **PAGE 144** **10/15/10**

In Section 203.02 L insert the paragraph "The Contractor shall salvage and reuse traffic service gravel." after the first paragraph.

203.03 I GUARDRAIL EMBANKMENT, TYPE C. **PAGE 146** **3/26/10**

Delete Section 203.03 I in its entirety and insert the following:

I. **Guardrail Embankment, Type C.** Guardrail Embankment, Type C will be measured as a unit at each location, complete and in place. The cost for benching the embankment, and stripping, stockpiling, replacing, and seeding the topsoil shall be included in the price bid for "Guardrail embankment - Type C.

203.04 BASIS OF PAYMENT **PAGE 147** **2/19/10**

Insert the following after "Guardrail Embankment, Type C" in the Payment table:

Pay Item	**Pay Unit**
Approach Inslope Reconstruction	Each
Ditch Block Slopes	Each

203.04 BASIS OF PAYMENT **PAGE 147** **10/17/08**

Delete the phrase "(1,000 Gallons)" after M Gal in the "Pay Unit" Column

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216.05 METHOD OF MEASUREMENT **PAGE 151** **10/17/08**

In the first sentence delete the phrase "(1,000 Gallons)" after M Gal.

234.06 BASIS OF PAYMENT **PAGE 158** **10/17/08**

Delete the phrase M Gallons in the "Pay Unit" Column and insert M Gal.

302.02 B ACCEPTANCE **PAGE 163** **10/16/09**

In Section 302.02 B.1 delete the title in its entirety and insert the following title "Aggregate Base and Salvage Base".

302.04 C DEPOSITING AND LAYDOWN **PAGE 163** **03/01/13**

Insert the following at the end of Section 302.04 C:

The Contractor shall uniformly mix the aggregate placed in windrows before spreading.

302.04 D COMPACTION **PAGE 164** **5/20/11**

In Section 302.04 D delete the sentence "If geotextile fabric is specified, Section 709 will govern compaction requirements." and insert the following, "If geotextile fabric is specified, Section 709 will govern compaction requirements for the first lift above the fabric."

302.06 BASIS OF PAYMENT **PAGE 165** **10/17/08**

Delete the parenthesis around M Gal.

304.06 BASIS OF PAYMENT **PAGE 169** **2/20/09**

In Section 304.06 delete the phrase under Pay Unit “Ton or Cubic Yard” and insert “Square Yard”.

306.06 BASIS OF PAYMENT **PAGE 173** **10/17/08**

Delete the parenthesis around M Gal.

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400 BITUMINOUS PAVEMENT **PAGE 175** **10/21/11**
1/1/12

Insert the following in Section 421:

SECTION 421
MICRO SURFACING

421.01 DESCRIPTION.

Micro Surfacing is a thin overlay material which has properties based on a mixture of modified emulsified asphalt, mineral aggregate, water and additives which are proportioned, mixed and uniformly spread over a properly prepared surface.

421.02 MATERIALS.

The material shall meet the following:

Item	Section
Aggregates	816.04
Bitumen	818.03
Tack Coat	401.00

A. Modifier. Special quick-setting emulsifier agents shall be mixed into the asphalt emulsion. The emulsified asphalt shall be formulated so that a paving mixture is applied at a thickness of one inch with the relative humidity at 59% or less and the ambient air temperature at 75° F or higher, the material shall cure sufficiently to carry rolling traffic in one hour with no damage to the surface, as verified by the Engineer.

B. Water. The water shall be potable and shall be free of harmful soluble salts.

C. Additives. A liquid field control additive is introduced and blended with water to provide effective control of the required quick-set properties. This additive shall be made available by the chemical supplier or emulsion manufacturer and certified as being compatible with the mixture.

421.03 EQUIPMENT.

The equipment shall meet the following:

Item	Section
Truck Scales	151.07
Mixing Equipment	151.09 A
Proportioning Devices	151.09 B
Emulsion Pump	151.09 C

Spreading Equipment	151.09 D
Rut Box	151.09 E

Machine Calibration. Each mixing unit to be used in performance of the work shall be calibrated in the presence of the Engineer prior to construction, or previous calibration documentation covering the exact materials to be used may be acceptable provided they were made during that calendar year. The documentation shall include the individual calibration of each material at various settings, which can be related to the machine metering devices.

421.04 CONSTRUCTION REQUIREMENTS.

A. Mix Design. Before start of work, the Contractor shall submit a mix design covering the specific material to be used on the project. This design shall be performed by a qualified laboratory. Once the materials are approved, no substitution will be permitted unless first tested and approved by the laboratory preparing the mix design.

The qualified laboratory shall develop the job mix design and present certified test results for the Contractors approval. Compatibility of the aggregate and emulsion shall be certified by the emulsion manufacturer. All component material used in the mix design shall be representative of the material proposed by the Contractor for use on the project. The mix design will meet the following:

TEST	*ISSA TEST NO.	SPECIFICATION
Mix Time @ 77°F (25°C)	TB-113	Controllable to 120 Seconds Minimum
Wet Cohesion @ 30 Minutes Minimum (Set) @ 60 Minutes Minimum (Traffic)	TB-139	 12 kg-cm Minimum 20 kg-cm or Near Spin Minimum
Wet Stripping	TB-114	Pass (90% Minimum)
Wet-Track Abrasion Loss One-hour Soak Six-day Soak	TB-100	 50 g/ft2 (538 g/m^2) Maximum 75 g/ft2 (807 g/m^2) Maximum
Lateral Displacement Specific Gravity after 1,000 Cycles of 125 lb (56.71 kg)	TB-147	5% Maximum 2.10 Maximum
Excess Asphalt by LWT Sand Adhesion	TB-109	50 g/ft^2 (538 g/m^2) Maximum
Classification Compatibility	TB-144	11 Grade Points Minimum (AAA, BAA)

* International Slurry Surfacing Association (ISSA)

The percentage of each individual material required shall be shown in the laboratory report.

The Engineer will review the design mix, all Micro Surfacing materials and methods prior to use. The component materials shall be within the following limits.

Residual Asphalt -	5% to 9% by dry weight of aggregate
Mineral Additive -	0.5% to 3% by dry weight of aggregate
Modifier -	As required to provide specified properties
Field Control Additive -	As required to provide the specified properties
Water -	As required to produce consistency

B. Stockpile. The mineral aggregate shall be stockpiled according to Section 106.06. The mineral aggregate shall be screened prior to being weighed for job site delivery.

C. Test Strip. A 1000-foot long, one lane wide test strip shall be constructed for each machine used on the project. A test section shall be done at sunrise. The machines shall be compared for variances in surface texture and appearance. The Engineer may direct any such variations to be corrected prior to production application beginning.

The emulsion shall not exceed 122° F. Construction of the test strip shall be postponed until the emulsion temperature is less than 122° F.

A new test strip shall be constructed whenever the system used in the job mix changes or there is field evidence that the system is out of control. The system includes the following: emulsion, aggregate supplier, type of mineral filler, and the lay-down machine.

In place of construction of a test strip, the Contractor may submit evidence of successful construction of a test strip on another Department project using the same mix designs. The project must have been constructed in the same construction season. The system used for the test strip must be identical to all parts of the proposed system.

Normal traffic shall be carried on the test strip within one and one-half hours after application, without any damage occurring. The Engineer will inspect the completed test strip after 12 hours of traffic to determine if the mix design is acceptable. Full production may begin after the Engineer accepts a test strip. The Engineer shall approve the location of the test strip.

D. Weather Limitations. The material shall be spread only when the road surface and atmospheric temperatures are at least 45° F and rising and the weather is not rainy and there is no forecast of temperatures below 32° F within 48 hours from the time of placement of the mixture.

E. Traffic Control. Suitable methods shall be used by the Contractor to protect the microsurface from traffic until the new surface will support traffic without damage.

The Contractor shall furnish flag persons, pilot cars, signs, and lights according to Section 704.

On two-lane, two-way traffic highways, the Contractor shall provide additional flaggers and signs at each end of the operation and at all major intersections within the operation area. These flaggers and signs will be in addition to the flaggers used with the pilot car. The flaggers will be on the project during the application operation when a pilot car is being used. Flaggers and pilot car(s) shall not be bid separately, but shall be included in the price bid for other items.

On four-lane highways the additional flaggers will not be required.

F. Surface Preparation.

1. **General.** The area to be surfaced shall be thoroughly cleaned of vegetation, loose aggregate and soil, particularly soil that is bound to the surface. Manholes, valve boxes and other service entrances will be protected from the surfacing material.

2. **Tack Coat.** If required by the plans, the Contractor shall apply a tack coat. The tack coat shall be allowed to cure before the application of the micro surfacing.

G. Application.

1. **General**. The surface shall be pre-wetted by fogging with water ahead of the spreader box when required by local conditions. The rate of application of the fog spray shall be adjusted during the day to suit temperatures, surface texture, humidity and dryness of the pavement surface.

The Micro Surfacing mixture shall be of the desired consistency upon leaving the mixer and no additional materials should be added. A sufficient amount of material shall be carried in all parts of the spreader at all times so that a complete coverage is obtained. Overloading of the spreader is not permitted. No lumping, balling, or unmixed aggregate shall be permitted.

No streaks may be left in the finished surface. If excessive streaking develops, the job will be stopped until the contractor proves to the Engineer that the situation has been corrected.

2. **Joints.** No excessive buildup, uncovered areas or unsightly appearances shall be permitted on longitudinal or transverse joints. The Contractor shall provide suitable width spreading equipment to produce a minimum number of longitudinal joints throughout the project. When possible, longitudinal joints shall be placed on lane lines. Half passes and odd width passes will be used only in minimum amounts. If half passes are used, they shall not be the last pass of any paved areas.

3. **Mix Stability.** The Micro Surfacing mixture shall possess sufficient stability so that premature breaking of the material in the spreader box does not occur. The mixture shall be homogeneous during and following mixing and spreading. It shall be free of excess water or emulsion, free of segregation of the emulsion and free of segregation of aggregate fines from coarse aggregate.

4. **Hand Work.** Areas which cannot be reached with the mixing machine shall be surfaced using hand squeegees to provide complete and uniform coverage. The area to be hand worked shall be lightly dampened prior to mix placement. Care shall be exercised to leave no unsightly appearance from handwork.

   Handwork shall be smoothed with a burlap drag to remove all ridges and valleys and to match the surface of the machine placed material unless another method of finishing is approved by the Engineer. Handwork shall be completed at the time of the machine-applied application.

5. **Lines.** Care shall be taken to insure straight lines along curbs and shoulders. No runoff on these areas will be permitted. Lines at intersections will be kept straight to provide a neat appearance.

421.05 METHOD OF MEASUREMENT.

Aggregate for Micro Surfacing. The dry aggregate weight will be measured by the ton. Weight of any moisture determined from moisture tests conducted will be subtracted from the weight of the aggregate for the purpose of obtaining a dry aggregate weight. The aggregate will be accepted at the job location stockpile or when loading into the support units for delivery to the lay-down machine.

Asphalt Emulsion for Micro Surfacing. Asphalt emulsion measured by the gallon.

421.06 BASIS OF PAYMENT.

Pay Item	Pay Unit
Aggregate for Micro-Surfacing Type __	Ton
Asphalt Emulsion for Microsurfacing	Gal

This payment shall be full compensation for all labor, equipment, additives, modifiers, and material necessary to complete work.

Insert the following in Section 422:

SECTION 422
SLURRY SEAL

422.01 DESCRIPTION.

The slurry seal shall consist of a mixture of an approved emulsified asphalt, mineral aggregate, water, mineral filler, and specified additives which are proportioned, mixed and uniformly spread over a properly prepared surface. The completed slurry seal shall leave a homogeneous mat, adhere firmly to the prepared surface, and have a skid-resistant surface texture.

422.02 MATERIALS.

The material shall meet the following:

Item	Section
Aggregates	816.05
Bitumen	818.04
Tack Coat	401.00

A. Water. The water shall be potable and shall be free of harmful soluble salts.

B. Additives The liquid field control additive is introduced and blended with water to provide effective control of the required set properties. This additive shall be made available by the chemical supplier or emulsion manufacturer and certified as being compatible with the mixture.

The mix design shall include the minimum and maximum allowances for the liquid field control additive in the mix. The mix design shall include the Wet Cohesion test results of the mix at the maximum allowable liquid field control additive. The test results shall meet the following requirements:

*ISSA TEST NO.	DESCRIPTION	SPECIFICATION
ISSA TB-139 @ 80° F	Wet Cohesion at 30 Minutes	12 kg-cm Minimum
	Wet cohesion at 60 Minutes	20kg-cm Minimum

*International Slurry Surfacing Association (ISSA)

422.03 EQUIPMENT.

The equipment shall meet the following:

Item	Section
Truck Scales	151.07
Mixing Equipment	151.09 A
Proportioning Devices	151.09 B
Emulsion Pump	151.09 C
Spreading Equipment	151.09 D

Machine Calibration.

Each mixing unit to be used in performance of the work shall be calibrated in the presence of the Engineer prior to construction. The documentation shall include the individual calibration of each material at various settings, which can be related to the machine metering devices. No machine will be allowed to

work on the project until the calibration has been completed and accepted.

To aid in the calibration of slurry machines, the laboratory shall also report the quantitative effects of moisture content on the unit weight of the aggregate (bulking effect) per AASHTO T 19, Rodding Procedure.

422.04 CONSTRUCTION REQUIREMENTS.

A. **Mix Design**. Before work begins, the Contractor shall submit a signed mix design covering the specific material to be used on the project. This mix design shall be performed by a laboratory qualified in designing emulsified asphalt slurry seal surfacing.

The qualified laboratory shall present certified test results for the Contractors approval. Once the materials are approved, no substitution will be permitted unless first tested and approved by the laboratory preparing the mix design.

Compatibility of the aggregate, emulsion, mineral filler, and other additives shall be verified by the mix design. All component material used in the mix design shall be representative of the material proposed by the Contractor for use on the project.

The mix design report must clearly show the minimum and maximum proportions of mineral fill, water, usage additive(s) and asphalt emulsion based on the dry weight of the aggregate.

The following table lists the required tests and mix specifications:

ISSA TEST NO.	DESCRIPTION	SPECIFICATION
ISSA TB-106	Slurry Seal Consistency	3 cm Maximum
ISSA TB-139 @ 77° F	Wet Cohesion at 30 Minutes (Set) Wet cohesion at 60 Minutes	12 kg-cm Minimum 20kg-cm Minimum
ISSA TB-109	Excess Asphalt by LWT Sand Adhesion	50 g/sq.ft. Maximum
ISSA TB-114	Wet Stripping	Pass (90% Minimum)
ISSA TB-100	Wet-Track Abrasion Loss, One-hour Soak	75 g/sq. ft.
ISSA TB-113	Mix Time*	Controllable to 180 Seconds Minimum

*The mixing test and set-time test should be performed at the highest temperatures expected during construction.

The Engineer will approve the mix design and all slurry sealing materials and methods prior to use. The component materials shall be within the following limits:

COMPONENT MATERIALS	LIMITS
Residual Asphalt	Type II: 8.0% to 13.5% Type III: 6.5% to 12% (By dry weight of aggregate)
Mineral Filler	0.5% to 2.0% (By dry weight of aggregate

Additives	As required to provide the specified properties and meet the wet cohesion requirements
Water	As required to produce consistency

B. Weather Limitations. The slurry seal shall not be applied if either the pavement or air temperature is below 50° F. and falling, but may be applied when both pavement and air temperatures are above 45° F. and rising. No slurry seal shall be applied when there is danger that the finished product will freeze before 24 hours. No slurry seal shall be applied when there is a weather forecast of rainfall or humidity greater than 75% within 48 hours of scheduled placement. The mixture shall not be applied when weather conditions prolong opening to traffic beyond a reasonable time.

C. Preparation of Surface.

1. **General.** The area to be surfaced shall be thoroughly cleaned of vegetation, loose aggregate and soil, particularly soil that is bound to the surface.

2. **Tack Coat.** If required by the plans, the Contractor shall apply a tack coat. The tack coat shall be allowed to cure before the application of the slurry seal.

D. Application

1. **General.** The surface shall be pre-wetted by fogging with water ahead of the spreader box when required by local conditions. The rate of application of the fog spray shall be adjusted during the day to suit temperatures, surface texture, humidity and dryness of the pavement surface.

   The slurry seal coat mixture shall be of the desired consistency upon leaving the mixer and no additional materials should be added. A sufficient amount of material shall be carried in all parts of the spreader at all times so that a complete coverage is obtained. Overloading of the spreader shall be avoided. No lumping, balling, or unmixed aggregate shall be permitted.

   No streaks may be left in the finished surface. If excessive streaking develops, the job will be stopped until the Contractor proves to the Engineer that the situation has been corrected.

   All excess material shall be removed from the job site prior to opening the road.

2. **Joints.** No excessive buildup, uncovered areas or unsightly appearances shall be permitted on longitudinal or transverse joints. The Contractor shall provide suitable width spreading equipment to produce a minimum number of longitudinal joints throughout the project. When possible, longitudinal joints shall be placed on lane. The longitudinal joint where two passes join shall be neat appearing, uniform and lapped. Half passes and odd width passes will be used only in minimum amounts. If half passes are used, they shall not be the last pass of any paved areas.

E. Mix Stability. The slurry seal coat mixture shall possess sufficient stability so that premature breaking of the material in the spreader box does not occur. The mixture shall be homogeneous during and following mixing and spreading. It shall be free of excess water or emulsion, free of segregation of the emulsion and free of segregation of aggregate fines from coarse aggregate.

F. Hand Work. Areas which cannot be reached with the mixing machine shall be surfaced using hand squeegees to provide complete and uniform coverage. The area to be hand worked shall be lightly dampened prior to mix placement.

Handwork shall be smoothed with a burlap drag to remove all ridges and valleys and to match the surface of the machine placed material unless another method of finishing is approved by the Engineer. Handwork shall be completed at the time of the machine-applied application.

G. Lines. Care shall be taken to insure straight lines along curbs and shoulders. No runoff on these areas will be permitted. Lines at intersections will be kept straight to provide a neat appearance.

H. Traffic Control. The Contractor shall furnish flag persons, pilot cars, signs, and lights according to Section 704.

On two-lane, two-way traffic highways, the Contractor shall provide additional flaggers and signs at each end of the operation and at all major intersections within the operation area. These flaggers and signs will be in addition to the flaggers used with the pilot car. The flaggers will be on the project during the application operation when a pilot car is being used. Flaggers and pilot car(s) shall not be bid separately, but shall be included in the price bid for other items.

On four-lane highways the additional flaggers will not be required.

422.05 METHOD OF MEASUREMENT.

Aggregate for Slurry Seal. The dry aggregate weight will be measured by the ton. Weight of any moisture determined from moisture tests conducted will be subtracted from the weight of the aggregate for the purpose of obtaining a dry aggregate weight. The aggregate will be accepted at the job location stockpile or when loading into the support units for delivery to the lay-down machine.

Asphalt Emulsion for Slurry Seal. Asphalt emulsion measured by the gallon.

422.06 BASIS OF PAYMENT.

Pay Item	Pay Unit
Aggregate for Slurry Seal - Type __	Ton
Asphalt Emulsion for Slurry Seal	Gal

This payment shall be full compensation for all labor, equipment, additives, modifiers, and material necessary to complete work.

407.04 J MIX TEMPERATURES **PAGE 196** **10/17/08**

In Section 407.04 J insert the following phase ", or manufacturers' recommendation" in three locations after the following temperatures: 230°F., 250°F., and 300°F.

407.04 M.2 ORDINARY COMPACTION **PAGE 197** **10/17/08**
6/19/09

In the first sentence of the third paragraph delete the following in its entirety "Sections 151.02 B, 151.02 C.2, or 151.02 D." and insert the following" Sections 151.02 B, 151.02 C.2, 151.02 D, or 151.02 E."

In the first sentence of the seventh paragraph, starting with "When compacting leveling courses…" insert the following phrase "or combination rollers" after the following "pneumatic-tired rollers"

In the second sentence of the seventh paragraph, with the paragraph starting: "When compacting leveling courses…" insert the following phrase "or combination rollers" after the following "pneumatic-tired rollers"

In the second sentence of the seventh paragraph, with the paragraph starting: "When compacting leveling courses…" insert the following phrase "or 151.02 E" after the following "Section 151.02 B"

407.07 BASIS OF PAYMENT **PAGE 202** **4/17/09**
3/01/13

Delete Section 407.07 B.2 in its entirety and insert the following:

2. When the patching requires excavation, the method and site of disposal of the waste materials shall be subject to the approval of the Engineer, and:

    a. The excavated material shall be loaded and hauled to a disposal area not adjacent to the work site; payment for the bituminous mixture used in the repair will be made under Section 104.03. Payment will include disposal of excavated material, and the furnishing, placing, and compacting of the aggregate.

    b. If aggregate is required to replace excavated material in the existing base or subgrade, payment for the class of aggregate used will be made under Section 104.03. Payment will include disposal of excavated material, and the furnishing, placing, and compacting of the aggregate.

    c. Payment for prime, tack, and the bitumen in the mix used in the repair will be made at the Contract Unit Prices for those items.

408.04 E MIXING **PAGE 207** **5/20/11**

In Section 408.04 E insert the following sentence "The Contractor shall inform the Engineer in writing prior to any changes of the blend percentages during production." to the end of the last paragraph.

408.04 F MIX TEMPERATURES **PAGE 207** **10/17/08**

In Section 408.04 F insert the following phase ", or manufacturers' recommendation" in three locations after the following temperatures: 300°F., 230°F., and 250°F.

408.04 H SPREADING AND FINISHING **PAGE 208** **10/21/11**

In section 408.04 H delete the last paragraph in its entirety, beginning with "Rumble strips…"

408.04 I.2 ORDINARY COMPACTION **PAGE 209** **10/17/08**

In the fifth paragraph delete the following in its entirety "Sections 151.02 B, 151.02 C.2, or 151.02 D." and insert the following" Sections 151.02 B, 151.02 C.2, 151.02 D, or 151.02 E."

In the first sentence of the sixth paragraph insert the following phrase "or 151.02 E" after the following "Section 151.02 B"

In the third sentence of the sixth paragraph insert the following phrase “or combination rollers” after the following “pneumatic-tired rollers”

In the first sentence of the ninth paragraph insert the following phrase “or combination rollers” after the following “pneumatic-tired rollers”

In the second sentence of the ninth paragraph insert the following phrase “or combination rollers” after the following “pneumatic-tired rollers”

In the second sentence of the ninth paragraph insert the following phrase “or 151.02 E” after the following “Section 151.02 B”

408.05 A AGGREGATE **PAGE 211** **10/16/09**

In Section 408.05 A.1 in the table titled “Aggregate Tolerances” delete the first row “5/8 sieve[1] +2%” in its entirety and insert “5/8 sieve[1] -2%”

408.05 A.1 GRADATION **PAGE 211** **10/17/08**
2/20/09

In the Section 408.05 A.1 in the first paragraph delete the first two sentences in their entirety and insert the following:

Aggregate samples will be tested for each 1,500 ton of mix produced with a minimum of one sample per day.

In the third paragraph delete the first sentence in its entirety and insert the following:

If any two or more consecutive tests result in the variance of any one or more sieves from the JMF gradation target value by more than the tolerances listed below, a deduction will be applied on the tonnage represented by the failing tests.

408.05 C.2 CONTRACTOR CORING **PAGE 215** **10/17/08**

In the first sentence of the second paragraph starting with “The Contractor shall” delete the phrase “with one location in each lane,” in its entirety.

408.05 C.3 COMPACTION PAYMENT SCHEDULE **PAGE 215** **2/20/09**
3/26/10

Delete Section 408.05 C.3 in its entirety and insert the following:

3. Compaction Payment Schedule.

Acceptance of mainline pavement placed on any production day will be based on the average density of the pavement compared to the daily average maximum theoretical density (MTD) determined for each lot of pavement placed. The average density of the field cores shall be at least 91.0% or 92.0% of the daily average MTD depending on the class of mix. If the average density of the field cores is less than specified for the daily average MTD, the unit price of the hot bituminous pavement will be adjusted according to the following tables:

PAVEMENT DENSITY ADJUSTMENT OF UNIT BID PRICE PER LOT

Table1:

Superpave FAA 40-43 Class 27, 29	
Percent Payment	**Avg. Pavement Density**
1.00	≥ 91.0%
0.98	90.0% - 90.9%
0.95	89.5% - 89.9%
0.91	89.0% - 89.4%
0.85	88.5% - 88.9%
0.70	88.0% - 88.4%
**	< 88.0%

Table 2:

Superpave FAA 44-45 Class 31, 33	
Percent Payment	**Avg. Pavement Density**
1.00	≥ 92.0%***
0.98	91.0% - 91.9%
0.95	90.5% - 90.9%
0.91	90.0% - 90.4%
0.85	89.5% - 89.9%
0.70	89.0% - 89.4%
**	< 89.0%

**The Engineer will determine whether the material may remain in place. The Pay Factor for the material allowed to remain in place shall be 0.70.

The density of the field cores will be determined according to the Department's Field Sampling and Testing Manual.

***The minimum required density will be reduced by 1% for the bottom lift constructed on aggregate base and reclaimed or cold in place (CIP) recycled base courses. If the average density of the field cores is less than 91% of the daily average MTD the unit price of the hot bituminous pavement will be adjusted according to Table 1.

408.06 D RUMBLE STRIPS **PAGE 217** **10/21/11**

Delete section 408.06 D in its entirety.

408.07 BASIS OF PAYMENT **PAGE 217** **10/21/11**

In the "Pay Item" Column delete the pay item "Rumble Strips".

408.07 BASIS OF PAYMENT **PAGE 218** **4/17/09**

Delete Section 408.07 C.2 in its entirety and insert the following:

2. When the patching requires excavation, the method and site of disposal of the waste materials shall be subject to the approval of the Engineer, and:

    a. The excavated material shall be loaded and hauled to a disposal area not adjacent to the work site; payment for the bituminous mixture used in the repair will be made per Ton according to the "Price Schedule PS-1." Payment will include disposal of excavated material, and the furnishing, placing, and compacting of the aggregate.

    b. If aggregate is required to replace excavated material in the existing base or subgrade, payment for the class of aggregate used will be made under Section 104.03. Payment will include disposal of excavated material, and the furnishing, placing, and compacting of the aggregate.

c. Payment for prime, tack, and the bitumen in the mix used in the repair will be made at the Contract Unit Prices for those items.

409.04 B.2 CONTRACTOR DEVELOPED MIX DESIGN PAGE 223 10/17/08

In the fourth paragraph, starting with “If the Department” in the second sentence delete the phrase “± 0.30” and insert the following “± 0.030”.

409.05 C.2 CONTRACTOR CORING PAGE 231 2/20/09

In Section 409.05 C.2 in the first sentence of the first paragraph delete the word “one” and insert the word “two”.

409.05 C.3 COMPACTION PAYMENT SCHEDULE PAGE 232 2/20/09 3/26/10

Delete Section 409.05 C.3 in its entirety and insert the following:

3. Compaction Payment Schedule.

Acceptance of mainline pavement placed on any production day will be based on the average density of the pavement compared to the daily average maximum theoretical density (MTD) determined for each lot of pavement placed. The average density of the field cores shall be at least 91.0% or 92.0% of the daily average MTD depending on the class of mix. If the average density of the field cores is less than specified for the daily average MTD, the unit price of the hot bituminous pavement will be adjusted according to the following tables:

PAVEMENT DENSITY ADJUSTMENT OF UNIT BID PRICE PER LOT

Table1:

Superpave FAA 40-43 Class 27, 29	
Percent Payment	**Avg. Pavement Density**
1.00	≥ 91.0%
0.98	90.0% - 90.9%
0.95	89.5% - 89.9%
0.91	89.0% - 89.4%
0.85	88.5% - 88.9%
0.70	88.0% - 88.4%
**	< 88.0%

Table 2:

Superpave FAA 44-45 Class 31, 33	
Percent Payment	**Avg. Pavement Density**
1.00	≥ 92.0%***
0.98	91.0% - 91.9%
0.95	90.5% - 90.9%
0.91	90.0% - 90.4%
0.85	89.5% - 89.9%
0.70	89.0% - 89.4%
**	< 89.0%

**The Engineer will determine whether the material may remain in place. The Pay Factor for the material allowed to remain in place shall be 0.70.

The density of the field cores will be determined according to the Department’s Field Sampling and Testing Manual.

***The minimum required density will be reduced by 1% for the bottom lift constructed on aggregate base and reclaimed or cold in place (CIP) recycled base courses. If the average density of the field cores is less than 91% of the daily average MTD the unit price of the hot bituminous pavement will be adjusted according to Table 1.

410.04 QUALITY CONTROL PLAN **PAGE 237** **10/17/08**

In Section 410.04 delete the phrase “Special Provision” in its entirety and insert the following “specification”.

410.04 ENGINEER’S LABORATORY **PAGE 237** **3/01/13**

Delete the first and second sentences in Section 410.04 “Engineer’s Laboratory” in its entirety and insert the following:

The Contractor shall provide an additional Type C laboratory and the testing equipment to be used during actual mix production by the Department’s aggregate lab and asphalt mix tester.

410.04 A PIT OPERATIONS AND STOCKPILING OF AGGREGATE **PAGE 238** **2/20/09**

In Section 410.04 A delete the third paragraph starting with “The mix design will not” in its entirety and insert the following:

- The mix design will not be approved and mix production will not begin.

410.04 A.1 DEPARTMENT-DEVELOPED MIX DESIGN **PAGE 238** **1/1/12**

Delete the first sentence in Section 410.04 A.1 in its entirety and insert the following:

The Plans will specify when the Department will develop the mix design.

410.04 A.2 CONTRACTOR-DEVELOPED MIX DESIGN **PAGE 238** **1/1/12**

Delete the first sentence in Section 410.04 A.2 in its entirety and insert the following:

The Contractor shall develop the mix design.

Insert the following Subsection after Section 410.04 A.2.b and change the existing Subsection c to Subsection d:

c. The mix design shall be submitted for approval a minimum seven days before the material is used.

410.05 C.2 CONTRACTOR CORING **PAGE 250** **2/20/09** **10/15/10**

In Section 410.05 C.2 in the first sentence of the first paragraph delete the phrase “one core” and insert the phrase “two cores”.

410.05 C.3 COMPACTION PAYMENT SCHEDULE **PAGE 251** **2/20/09**

3/26/10

Delete Section 410.05 C.3 in its entirety and insert the following:

3. Compaction Payment Schedule.

Acceptance of mainline pavement placed on any production day will be based on the average density of the pavement compared to the daily average maximum theoretical density (MTD) determined for each lot of pavement placed. The average density of the field cores shall be at least 91.0% or 92.0% of the daily average MTD depending on the class of mix. If the average density of the field cores is less than specified for the daily average MTD, the unit price of the hot bituminous pavement will be adjusted according to the following tables:

PAVEMENT DENSITY ADJUSTMENT OF UNIT BID PRICE PER LOT

Table1:

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0.91	89.0% - 89.4%
0.85	88.5% - 88.9%
0.70	88.0% - 88.4%
**	< 88.0%

Table 2:

Superpave FAA 44-45 Class 31, 33	
Percent Payment	**Avg. Pavement Density**
1.00	≥ 92.0%***
0.98	91.0% - 91.9%
0.95	90.5% - 90.9%
0.91	90.0% - 90.4%
0.85	89.5% - 89.9%
0.70	89.0% - 89.4%
**	< 89.0%

**The Engineer will determine whether the material may remain in place. The Pay Factor for the material allowed to remain in place shall be 0.70.

The density of the field cores will be determined according to the Department's Field Sampling and Testing Manual.

***The minimum required density will be reduced by 1% for the bottom lift constructed on aggregate base and reclaimed or cold in place (CIP) recycled base courses. If the average density of the field cores is less than 91% of the daily average MTD the unit price of the hot bituminous pavement will be adjusted according to Table 1.

411.03 A MILLING PAVEMENT SURFACE **PAGE 254** **2/20/09**

In Section 411.03 A after the eighth paragraph add the following paragraph:

When the milled material is used in Recycled Asphalt Pavement (RAP), a maximum of 500 feet per area may be milled for the mix design. The Contractor shall place the pavement overlay within twenty one calendar days after the mix design is approved.

420.04 E PROTECTION OF TRAFFIC AND PRESERVATION OF THE SEAL COAT
PAGE 258 **4/17/09**
5/15/09

In the last sentence of the second paragraph in Section 420.04 E delete the word "bud" in its entirety and insert the following: "bid".

In Section 420.04 E after the fourth paragraph add the following paragraph:

When pavement marking according to section 762.04 is not specified; before sealing operations the Contractor shall install and remove spotting tabs according to section 762.04 D.1.e. The cost of the spotting tabs and their installation and removal shall be included in the price bid for other items.

550.04 G.1 GENERAL **PAGE 269** **10/21/11**

In section 550.04 G.1 delete the sixth paragraph in its entirety, beginning with “Continuous rumble strips…”

550.04 I.2 TRANSVERSE CONTRACTION JOINTS **PAGE 272** **10/21/11**

Delete the sixth paragraph of Section 550.04 I.2 starting with “Dowel baskets shall…” in its entirety and insert the following:

Dowel baskets shall be placed a minimum of 2000 feet ahead of the paving operation to allow adequate time to be properly inspected.

550.04 I.2 TRANSVERSABLE CONTRACTION JOINTS **PAGE 273** **10/17/08**

Add the word “or” after “lithium grease,” in the first sentence of the last paragraph starting with “A uniform coat”.

550.04 I.5 TIE BARS AND LONGITUDINAL JOINT **PAGE 275** **2/18/11**

In the first sentence of the first paragraph in Section 550.04 I.5 delete the word “baskes” in its entirety and insert the following word “baskets”.

550.04 J.2 USE OF WATER **PAGE 276** **5/20/11**

In Section 550.04 J.2 delete the first sentence in its entirety.

550.04 J.3.c BRIDGE APPROACH SLABS **PAGE 276** **10/17/08**

After the last paragraph insert the following paragraph: “Metal Tine Finish shall be in accordance with Section 602.03 B.2.”

550.04 J.6 FINAL SURFACE FINISH **PAGE 277** **1/1/12**

Delete Section 550.04 J.6 in its entirety and insert the following:

6. **Final Surface Finish.** After surface irregularities have been removed and before the concrete attains an initial set, a seamless strip of stiff-fiber artificial grass carpet shall be dragged longitudinally along the full width of the pavement. The surface texture shall be uniformly roughened leaving corrugations in the surface that are uniform in appearance. The width of material in the drag shall be in contact with the full width of the pavement. The drag shall be operated off of a string-line with its leading edge attached to a bridge riding on the forms or

adjacent slabs. The drag shall be maintained clean and free from encrusted mortar. A drag that cannot be cleaned shall be replaced with new fabric.

a. **Carpet Drag.** The texture achieved by the carpet drag shall be tested by the Engineer in accordance with ASTM E 965 and the Department's *Field Sampling and Testing Manual*. The tests shall be performed at a location to be determined by the Engineer.

   The test results determined by ASTM E 965 shall have a minimum texture depth of 0.031 inches. The Contractor shall take corrective action to achieve the required 0.031 inches minimum depth for any lot having a result less than 0.031 inches. If three or more lots have texture depths less than 0.031 inches but greater than or equal to 0.025 inches, diamond grinding shall be required of those lots. Any one lot having a texture depth of less than 0.025 inches shall require diamond grinding. All diamond grinding shall be in accordance with Section 550.04 P.3 at the Contractor's expense. Limits of any failing test shall be determined by running additional tests at 100 foot intervals before and after the failing test. The location of the additional tests shall be determined by the Engineer.

b. **Metal Tining.** When speeds are greater than 40 mph metal tining will be required. Immediately following the carpet drag, the surface of the concrete pavement shall be given a longitudinal metal-tine finish over the entire driving surface, as specified below. However, the slab shall not be tined within 3 inches of the edge of the slab or centerline.

Tining devices shall be maintained clean and free from encrusted mortar and debris to ensure uniform groove dimensions. The longitudinal metal-tine finish shall provide a groove width of 1/8 inch ± 1/64 inch, a groove depth of 3/16 inch ± 1/16 inch, and a uniform spacing of 3/4 inch between individual grooves.

550.04 K.1 GENERAL **PAGE 278** **5/20/11**

At the beginning of the paragraph insert the following sentence: "When weather conditions cause rapid drying of the pavement surface, a fine mist or fog spray shall be applied to the concrete surface for interim curing."

550.04 J.8 RUMBLE STRIPS **PAGE 278** **10/21/11**

Delete section 550.04 J.8 in its entirety.

550.04 N PROTECTION OF PAVEMENT **PAGE 280** **3/18/11**

In Section 550.04 N delete the second paragraph in its entirety and insert the following:

The Contractor shall maintain a temperature of 40° F. or above for five full days, for all newly-placed concrete. If the air temperature is expected to be 40° F. or below, the Contractor shall submit a detailed plan that states the procedure of maintaining the concrete temperature at 40° F. or above, prior to any placement of concrete. If the plan is approved, the removal and replacement of concrete that is damaged or not cured within the specified temperature control shall be at the Contractor's expense. Admixtures for curing or temperature control shall be used only as permitted or directed. The admixtures shall not be considered as a substitute for any specified curing requirement.

550.04 R OPERATIONAL LIMITS **PAGE 285** **3/18/11**

Delete Section 550.04 R in its entirety and insert the following:

R. **Operational Limits.**

1. **General.** No concrete shall be mixed, placed, or finished without adequate natural or artificial lighting.

2. **Mixing.** Concrete mixing operations shall be suspended whenever rain, wind, blowing dirt, extreme temperatures, or other adverse conditions occur which damage the work. The previously placed plastic concrete shall be immediately protected from damage. After mixing, the concrete temperature shall be maintained at not less than 50°F. nor more than 90°F. until placed in the work. If the specified temperature range cannot be maintained, the aggregates, mixing water, or both shall be heated or cooled as required. Aggregates shall not be heated by a direct flame or to a temperature exceeding 150°F. If the aggregate or the water is heated to a temperature exceeding 100°F., the aggregate and water shall be combined before being placed in contact with the cement. When heated by live steam, aggregates shall be drained as provided in Section 802.04 A.2 before being measured into the batches. Heating equipment or methods which do not heat the materials uniformly, or alter or prevent the entrainment of the specified concrete air content shall not be used. Materials containing frost or lumps of frozen material shall not be used.

3. **Placing.** Concrete shall not be placed on or against frozen ground.

   If enclosures are used, the enclosures shall be heated with electric heaters or if combustible heaters are used, be properly vented to prevent the buildup of carbon monoxide.

4. **Curing.** When the temperature falls below 40°F., the concrete surface temperature shall be maintained between 40°F. and 90°F. for the duration of the curing period.

   If high early strength Portland Cement is used, the temperature shall be maintained at between 50°F. and 90°F. during the first 72-hour curing period.

   Heating operations shall be discontinued so that sudden temperature changes in the concrete are avoided. Before removing any enclosures, the concrete's surface temperature shall be decreased to the air temperature at a rate not to exceed 15°F. per hour.

   The concrete shall be protected against damage from construction operations or traffic. No work shall be conducted on the concrete during the curing process. Vehicles or equipment not required in the curing process shall not be placed on the concrete until the curing period is completed.

   Damaged concrete shall be repaired or removed and replaced at the Contractor's expense.

550.06 B MISCELLANEOUS ITEMS **PAGE 288** **10/21/11**

In the "Pay Item" Column delete the pay item "Continuous Rumble Strip".

570.02 B PORTLAND CEMENT CONCRETE FOR REPAIRS **PAGE 292** **5/20/11**

In Section 570.02 B delete the second sentence, "Use AASHTO M-85 high early cement for spall repairs." in its entirety and replace it with the sentence, "The cement content for spall repairs shall have a minimum cement content of six sacks per cubic yard.

570.04 A.6 REPAIR SIZE AND LONGITUDINAL JOINT TREATMENT **PAGE 294** **7/17/09**

In Section 570.04 A.6.b delete the first sentence in its entirety and insert the following:

b. Treat centerline and shoulder joint steel on repairs exceeding 15 feet in length as follows:

570.05 METHOD OF MEASUREMENT **PAGE 301** **2/19/10**

Delete Sections 570.05 M and 570.05 L in their entirety.

Delete the title of the following Section 570.05 N in its entirety and insert the following:

L. Full-Depth Repair -- End Preparation.

Delete the title of the following Section 570.05 O in its entirety and insert the following:

M. Full-Depth Repair -- End Prep-Mech Splice.

Delete the title of the following Section 570.05 P in its entirety and insert the following:

N. Full-Depth Continuous Concrete Repair.

Insert the following as Section 570.05 O:

O. Random PCC Crack Cleaning & Sealing. Include all costs for material and labor for cleaning and sealing random joints in the unit price bid for "Random PCC Crack Cleaning & Sealing."

570.05 G SAWCUTS **PAGE 302** **3/18/11**

In the second sentence delete the word "te" in its entirety and insert the word "the".

602.03 F CURING CONCRETE **PAGE 322** **2/20/09**
PAGE 323 **4/17/09**

In Section 602.03 F.1 delete the second sentence in the first paragraph in its entirety and insert the following:

The curing period shall be ten days when pozzolans in excess of 10 percent, by weight, of the Portland cement are used in the mix.

In Section 602.03 F.2.b delete the phrase "ten-day" and insert the following phrase "seven-day".

Delete Section 602.03 F.3.b in its entirety.

602.03 F.3 DECK SLAB CONCRETE **PAGE 323** **1/1/12**

In Section 602.03 F.3.a delete the third sentence in its entirety and insert the following:

> The wet cure material shall be placed and the wet cure started no later than 30 minutes after placement of concrete.

604.04 A CONSTRUCTION REQUIREMENTS **PAGE 331** **2/20/09**

In Section 604.04 A delete the fifth paragraph in its entirety and insert the following:

Shop drawings shall show all beam dimensions; the size and location of all reinforcing and prestressing steel; the details of end anchorages if used, and any necessary revisions to bridge seats. Shop drawings shall be submitted in accordance with Section 105.08.If shop drawings are returned for revision, revisions shall be made and resubmitted to the Engineer. The time required for the review of each submittal will not exceed 14 days after the shop drawings are received by the Engineer. Two paper copies or one electronic version of the reviewed and final drawings shall be furnished to the Engineer before fabrication.

606.03 DESIGN AND MANUFACTURE **PAGE 334** **5/20/11**
7/1/12

Delete Section 606.03 in its entirety and insert the following:

The design and manufacture of the precast RCB shall satisfy the applicable portions of AASHTO LRFD Bridge Design Specifications, Section 12, and "AASHTO Materials Specification M 259." The design shall also meet the following criteria:

A. **Live Load.** HL93

B. **Load Factors.**
   1. Dead Load
      a. Components and Attachments**,** $\square_{DC}$ = 1.25
      b. Vertical Earth Pressure, $\square_{EV(max)}$ = 1.3, $\square_{EV(min)}$ = 0.9
   2. Live Load, $\square_{LL}$ = 1.75
   3. Horizontal Earth Pressure, $\square_{EH(max)}$ = 1.5, $\square_{EH(min)}$ = 0.9

C. **Strength Reduction Factors.**
   1. Shear = 0.9
   2. Flexure = 0.9

D. **Loads.**
   1. Concrete = 150 lbs./cu. ft.
   2. Earth = 120 lbs./cu. ft.
   3. Horizontal Earth = 40 lbs./sq. ft./ft. of depth

E. **Application of Loads.** The RCB shall be designed for the greater moments and shears resulting from the following two load conditions:
   1. Dead Load + Live Load + Balanced Horizontal Earth Load
   2. 0.8 X (Dead Load + Live Load + Unbalanced Horizontal Earth Load). The unbalanced horizontal earth load occurs when one side of the culvert has 40 lbs./sq. ft./ft. of depth while the other side has 20 lbs./sq. ft./ft. of depth.

The precast RCB shall be comprised of barrel sections and end sections. The concrete used to make the sections shall have a minimum compressive strength of 3,000 psi and shall have a minimum cement content of six sacks per cubic yard.

The barrel sections shall not be any shorter than 4 feet long. The minimum thickness of the barrel parts are 8 inches for the roof, floor and walls. Any haunch or fillet at the inside corners of the barrel shall not exceed a triangular shape with 12-inch horizontal and 12-inch vertical legs. The barrel section joints shall be tongue and groove, a minimum of 4 inches long and a width of 3 ½ inches at the end of the tongue.

606.04 CONSTRUCTION REQUIREMENTS PAGE 335 2/20/09

In Section 606.04 delete the first sentence in the first paragraph in its entirety and insert the following:

The Contractor shall submit shop drawings in accordance with Section 105.08. If shop drawings are returned for revision, revisions shall be made and resubmitted to the Engineer. The time required for the review of each submittal will not exceed 14 days after the shop drawings are received by the Engineer. Two paper copies or one electronic version of the reviewed and final drawings shall be furnished to the Engineer before the manufacture of the RCB sections.

606.04 CONSTRUCTION REQUIREMENTS PAGE 335 3/26/10

In third paragraph in Section 606.04 starting with “The installation of the” delete the second sentence in its entirety and insert the following:

> The backfill shall be compacted to 90 percent standard density per AASHTO T 180. Maximum thickness of any one lift shall not exceed 6 inches.

616.03 A SHOP DETAIL DRAWINGS PAGE 339 2/20/09
3/26/10

In Section 616.03 A in the third sentence in the third paragraph delete the phrase “the fabricator’s contract number,” in its entirety.

In Section 616.03 A delete the fourth paragraph in its entirety and insert the following:

The Contractor shall submit shop drawings in accordance with Section 105.08. If shop drawings are returned for revision, revisions shall be made and resubmitted to the Engineer. The time required for the review of each submittal will not exceed 14 days after the shop drawings are received by the Engineer. Two paper copies or one electronic version of the reviewed and final drawings shall be furnished to the Engineer before fabrication. Additional time required to make adjustments to shop drawings due to the Contractor’s errors or omissions is the responsibility of the Contractor. Additional work or file copies of final drawings shall be provided as requested.

In Section 616.03 A in the second sentence in the fifth paragraph delete the phrase “approved” and insert the word “reviewed”.

In Section 616.03 A in the first sentence in the sixth paragraph delete the phrase “and approval”.

638.03 D BACKFILL PAGE 374 2/20/09

Delete Section 638.03 D in its entirety and insert the following:

D. **Backfill.** After assembling the pipe, the backfill shall be placed uniformly and equally on each side of the pipe in layers not to exceed six inches before compaction. Compaction requirements for all materials associated with the trench installation shall be installed as specified in Section

203.02 G. Adequate earth cover shall be placed over the structure before heavy construction equipment is driven over it.

650.03 B PROPORTIONING AND MIXING EQUIPMENT **PAGE 376** **3/01/13**

Delete Section 650.03 B in its entirety and insert the following:

B. **Proportioning and Mixing Equipment.** Proportioning and mixing equipment shall be of a self-contained mobile type (not conventional ready-mix truck), meeting Section 153.02 C and set up at the bridge site.

650.03 C PLACING AND FINISHING EQUIPMENT **PAGE 376** **3/01/13**

Delete Section 650.03 C in its entirety and insert the following:

C. Placing and Finishing Equipment.

1. Placing and finishing equipment shall include hand tools for placing and brushing-in freshly mixed mortar, and for distributing material to the depth that can be struck off with the screed. Hand operated vibrators and screeds shall be used to place and finish small areas of work.

2. Finishing equipment shall meet Section 153.09 C.

3. A drag and a metal tining device meeting Section 602.03 B.2 shall be used for the final finish.

650.04 REMOVAL AND OVERLAY WITH THE USE OF MECHANICAL EQUIPMENT. **PAGE 376** **10/16/09 3/01/13**

Delete Section 650.04 in its entirety and insert the following:

A. Classification of Removals and Overlays.

1. **Class 1 Removal.** Class 1 removal consists of removing deck concrete to a depth of 1/2 inch below the existing finished surface, except at drains and elsewhere as specified; disposing of the removed concrete. Concrete removed below a depth of 1/2 inch below the existing finished surface coincidental with Class 1 removal is part of the Class 1 removal area.

2. **Class 2 Removal.** Class 2 removal areas will be determined by the Engineer after Class 1 removal has been accomplished. Class 2 removal consists of removal, disposal, and replacement of concrete below the bottom of the Class 1 removal. The lower limit of the Class 2 removal shall be the top of the bars in the top layer of reinforcing steel. Concrete removed below the top of the top bar coincidental with Class 2 removal is part of the Class 2 removal area. The removed volume shall be replaced with concrete to a level bounding the Class 1 removal.

3. **Class 2-A Removal.** Class 2-A removal areas will be determined by the Engineer after Class 1 and Class 2 removal have been accomplished. Class 2-A removal consists of removal, disposal, and replacement of concrete around the periphery of reinforcing bars in the top mat. Class 2-A removal will be ordered when an isolated bar has lost bond on more than 1/2 of its circumference. The removed volume shall be replaced with concrete bounding the Class 2 removal. Class 3 removal may be ordered in lieu of Class 2-A removal if damage to sound concrete between bars is suspected.

4. **Class 3 Removal.** Class 3 removal areas will be determined by the Engineer after Class 1 and Class 2 removal have been accomplished. Class 3 removal consists of removal, disposal, and replacement of concrete below the bottom of the Class 2 removal to sound concrete or to a maximum depth bound by the top of the top bar of the bottom mat of reinforcing steel. The removed volume shall be replaced with concrete to a level bounding the Class 2 removal.

5. **Class 4 Removal.** Class 4 removal will be determined by the Engineer after Class 1, Class 2, and Class 3 removal have been accomplished. Class 4 removal consists of removal and disposal of concrete below the level described for Class 3 removal and for the full remaining depth of the deck and replacement of the removed volume with AAE-3 Portland Cement Concrete or low slump concrete to a level bounding the Class 1 removal. Edges of the full depth hole in the deck shall be nearly vertical or tapered inward from top to bottom. A reverse taper will not be permitted. The underside of the completed deck replacement shall have a neat, smooth appearance.

6. **Overlays.** Thickness of the concrete overlay shall be measured from a level 1/2 inch below the original surface to the final raised surface as specified for Class 1 removal. Thickness of concrete overlay shall be measured as specified for Class 2, 2-A, 3, and 4 removals.

B. Construction Requirements.

1. General.

All concrete aggregate shall be available for sampling and testing, for a minimum of five days before lane closure. The Department is not responsible for delays or additional costs caused by failing aggregate.

Asphalt overlays shall be removed before any concrete removal. Asphalt removal equipment shall not damage the surface of the concrete deck.

To ensure proper overlay thickness, measurements shall be made from the finisher screed to the prepared deck surface.

The deck surface shall be sandblasted and cleaned with compressed air after grinding and concrete removal operations are completed. Wet sandblasting shall not be used.

All exposed reinforcing steel shall be thoroughly sandblast cleaned of all deleterious material and concrete. Reinforcing bars which have lost 1/4 or more of their original dimensions shall be removed and replaced with a new lap-spliced bar. Reinforcing bars damaged due to removal operations shall be replaced at the Contractor’s expense.

2. Removal Requirements.

a. **Class 1 Removal.** The existing concrete deck area shall be uniformly ground to a depth of 1/2 inch. Removal to a greater depth shall be required at drains and other noted locations.

b. **Class 2 Removal.** Concrete shall be removed by chipping or by a combination of grinding and chipping. Removal shall be considered to start ½ inch below the existing surface.

c. **Class 2-A Removal.** Concrete shall be removed from around the periphery of the reinforcing steel using power hammers and hand tools without cutting, stretching, or damaging any exposed reinforcing steel. A minimum clearance of 3/4 inch around the bar shall be attained.

d. **Class 3 Removal.** Concrete shall be removed by chipping with power hammers and hand tools without cutting, stretching, or damaging any exposed reinforcing steel.

e. **Class 4 Removal.** This work consists of complete removal of that portion of the bridge deck which the Engineer designated for full depth removal. Forms shall be provided to enable placement of new concrete.

3. Mixing of Materials.

a. **Class AAE-3 Concrete.** Concrete shall be mixed according to Section 802.

b. **Low-Slump Concrete.** Concrete shall be mixed at the site. The mixing rate shall allow finishing operations to proceed at a steady rate.

4. Placing, Finishing, and Curing.

a. General.

At longitudinal construction joints, the surface course previously placed shall be sawn to a straight and vertical edge before the adjacent course is placed.

After the machine finishing has been completed, hand finishing with a wood float may be required to produce a tight, uniform surface.

Immediately after finishing, all vertical joints with adjacent concrete shall be sealed by painting with a thinned grout before the curing operation begins.

A drag shall be pulled over the surface in a longitudinal direction while the concrete is plastic. It shall be immediately followed with a transverse metal tine finish as specified in Section 602.03 B.2.a. The tining shall be stopped 18 inches from the face of the curb. The tining device shall be drawn transversely across the full width of the pavement without overlapping passes. The tining shall be neat and uniform, and shall produce grooves without tearing the surface or bringing course aggregate to the surface. The finished surface shall be free from rough or porous areas and irregularities resulting from improper handling of the device. Concrete surfaces which do not meet the above requirements shall be corrected at the Contractor's expense by cutting transverse grooves in the hardened concrete with diamond bladed equipment.

The surface tolerance of the finished concrete overlay shall be less than or equal to 3/16 inch in 10 feet. Measurements for smoothness will be taken on approximately 2-foot spacing over the entire deck. Any portion of the deck not meeting the tolerance shall be corrected by grinding or reoverlaying the deck. The tined surface texture shall be restored with diamond bit cutting equipment. Grinding or grooving that decreases the cover to less than 1-1/2 inches over the top of the reinforcing steel shall not be used.

b. Special Requirements for Low-Slump Concrete.

Concrete for Class 1, 2, 2-A, and 3 removal areas may be placed in one operation.

Where full depth concrete is required, Class AAE-3 or low-slump concrete may be used. Concrete for the Class 4 removal areas shall be struck off at the bottom level of Class 1 unless the Class 4 falls entirely with a Class 2 or 3 removal area. In that case, the concrete shall match the prepared surface of either the Class 2 or 3

removal area. The concrete shall receive the wet cure meeting Section 602.03 F.3 for at least 72 hours, and shall be sandblasted and cleaned before overlaying.

The prepared deck surface shall be dry to permit absorption of the bonding grout. All vertical and horizontal surfaces shall receive a thorough, even coating of bonding grout at a controlled rate so that grout does not dry before covering with new concrete.

The concrete shall be screeded to final grade and consolidated to 98 percent of the unit weight using AASHTO T 121. The surface shall receive a wet cure meeting Section 602.03 F.3 except that the curing period shall be five days. Concrete that is not wet cured within 30 minutes after placement shall be removed to the original prepared surface and replaced at the Contractor's expense.

5. Limitations of Operations.

No preparation work will be allowed until the lane or strip is closed for traffic. This lane shall remain closed until the overlay has been completed.

No loads other than equipment needed to remove and replace concrete shall be allowed on the deck that has undergone preparation before placement and curing of concrete. Mixers shall not be operated on the structure. Equipment used for transporting concrete shall not damage the prepared deck surface and shall be designed for transporting concrete. Equipment shall not leak oil, hydraulic fluid, or any other contaminant onto the prepared deck surface. Equipment used to transport mortar or concrete shall be of sufficient size and adequate design to handle the volume of material without spilling or dripping.

No vehicular traffic shall be permitted on the new overlay until the specified curing period is completed. If daily mean temperatures fall below 55°F. during the five days following concrete placement, additional curing days will be required.
When temperatures are above 80°F. placement shall be made at night or early morning hours by installing and operating necessary lighting. Rescheduling an overlay placement may be required if weather conditions adversely effect the quality of the overlay.

Overlays shall not be placed unless the temperature is 45°F. and rising.

Bridge deck overlays shall not be placed after September 15 unless authorized by the Engineer.

C. Method of Measurement.

1. **Class 1, 2, 3, and 4 Removal.** The quantities of Class 1, 2, 3, and 4 Removal will be measured by the square yard.

2. **Class 2-A Removal.** The quantity of Class 2-A Removal will be measured in linear feet. Class 2-A Removal shall not be paid for in areas which require Class 3 Removal.

3. **Overlay Concrete.** The quantity of Overlay Concrete will be in cubic yards as determined by the mobile mixer counter and the yield box. One yield box test will be required at the start of each pour. This will determine if the mobile mixer is still in proper calibration as per the requirements of the manufacture.

   Each yield test will follow these general guidelines.

   a. Use a pre determined volume yield box, ¼ Cu Yd typical
   b. Set cement meter to Zero
   c. Discharge Concrete until the yield box is full, but not over flowing

d. Determine the cement meter count for ¼ Cu Yd

The determined meter count should be ± 1% of the calibrated meter count as determined earlier. If it is within the tolerance, then it becomes the new calibrated meter count. If the tolerance is not met, then the calibration process must be redone as per the manufactures requirements.

The cubic yards placed on the bridge deck will be determined by taking the counter readings before and after each placement times the meter count as determined by the yield test.

The amount of waste will be determined and agreed upon by the Contractor and the Engineer at the end of each day. The material used in the yield tests shall be considered waste and shall not be used in the deck.

D. Basis of Payment.

Quantities measured will be paid for at the Contract Unit Price for the pay items shown. Payment will be full compensation for all labor, equipment, and materials necessary to complete the work.

When there is no bid item for Class 4 removal, payment will be made in accordance with Section 104.03. Class 1, 2, 2-A, or 3 removal authorized prior to Class 4 removal shall be paid at the bid price.

No adjustment to bid prices will be made for Class 1, 2, 2-A, or 3 removal.

650.05 B.4 PLACING, FINISHING, AND CURING OVERLAY **PAGE 383** **5/15/09**

Delete Section 650.05 B.4.a in its entirety and insert the following:

a. General

Placing, Finishing, and Curing Overlay shall be as specified in Section 650.04 B.4.a.

650.05 D BASIS OF PAYMENT **PAGE 384** **10/16/09**
3/01/13

Delete Section 650.05 D in its entirety and insert the following:

D. Basis of Payment.

Quantities measured will be paid for at the Contract Unit Price for the pay items shown. Payment will be full compensation for all labor, equipment, and materials necessary to complete the work.

When there is no bid item for Class 3-H removal, payment will be made in accordance with Section 104.03. Class 1-H or 2-H removal authorized prior to Class 3-H removal shall be paid at the bid price.

No adjustment to bid prices will be made for Class 1-H or 2-H removal.

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700 MISCELLANEOUS CONSTRUCTION **PAGE 385** **10/21/11**
7/1/12

Insert the following in Section 760:

SECTION 760
RUMBLE STRIPS

760.01 DESCRIPTION

This work consists of milling centerline, shoulder, and intersection rumble strips on concrete or bituminous surfaces, sweeping of driving lanes, paved shoulders, and all milled areas. If milled into new or existing bituminous pavements, work shall consist of fog sealing across the full width of the milled area.

760.02 CONSTRUCTION REQUIREMENTS

A. **Shoulder and Centerline Rumble Strips.** Shoulder and centerline rumble strips shall be discontinued across bridge decks and approach slabs. Shoulder rumble strips shall be discontinued when adjacent to guardrail. Shoulder and centerline rumble strips shall be discontinued one half mile on either side of highway segments with posted speeds of 45 mph or less, all urban areas, and areas with curb and gutter, or as directed by the engineer.

Shoulder and centerline rumble strips shall be discontinued 10 feet before and after any Automated Traffic Recorders or Roadway Weather Information Systems system. Shoulder rumble strips shall be discontinued 300 feet before and 100 feet after in the direction of travel for any Weigh in Motion equipment. Centerline rumble strips shall be discontinued 300 feet before and after any Weigh in Motion equipment.

B. **Intersection Rumble Strips.** Intersection rumble strips shall be installed at all T-intersections of two state highways and at all STOP conditions of state highways.

Intersection rumble strips shall be saw cut. The Contractor shall dispose of all waste material outside of the right of way.

Intersection rumble strips shall not be installed on highways with posted speeds 45 mph or less, in urban areas, or areas with curb and gutter.

Intersection rumble strips shall be discontinued across bridge decks and approach slabs.

C. Sweeping. The sweeper shall immediately follow the milling machine. The sweeper shall remove all milled and sawed materials. Driving lanes and paved shoulders shall be swept within 48 hours prior to fog coat. All costs for sweeping shall be included in the price bid for “Rumble Strips - _____”.

D. Fog Coat. The Contractor shall apply a fog coat across the full width of the milling and sawing with an application of SS-1h or CSS-1h emulsified asphalt at a rate of 0.10 Gal/SY on bituminous surfaces. Fog coats shall be in accordance with Section 401. All costs for fog sealing shall be included in the price bid for “Rumble Strips –_____”.

E. Traffic Control. A TMA shall be used as specified in Section 762.04 C.2

760.03 METHOD OF MEASUREMENT

Shoulder rumble strips shall be measured by segment length for each shoulder per mile. Centerline rumble strips shall be measured by segment length per mile. No deduction in length will be made for discontinued rumble strips with the exception of areas one half mile on either side of highway with posted speeds of 45 mph or less, all urban areas, and areas with curb and gutter.

Intersection rumble strips shall be measured as “Each”. One “Each” Intersection rumble strip shall consist of installing four 15 foot and two 25 foot saw slotted rumble strip sections.

760.04 BASIS OF PAYMENT

Pay Item	Pay Unit
Rumble Strips – Concrete Shoulder	Mile
Rumble Strips – Concrete Centerline	Mile
Rumble Strips – Asphalt Shoulder	Mile
Rumble Strips – Asphalt Centerline	Mile
Rumble Strips – Intersection	Each

This payment shall be full compensation for all labor, equipment, TMA, and material necessary to complete work.

704.02 J DELINEATORS **PAGE 401** **10/19/12**

Insert the following as the last sentence in Section 704.02 J:

Delineators shall meet the requirements as specified in Section 894.06.

704.03 CONSTRUCTION REQUIREMENTS **PAGE 403** **3/01/13**

Insert the following at the end of Section 704.03:

AA. Attenuation Device. The Contractor shall provide the required modules for layouts as required in the plans. The Contractor shall provide and have available on the project site additional replacement modules for each layout location up to a maximum of 20 modules per project.

The Contractor shall be responsible for maintaining the modules in each layout. The Contractor shall replace any damaged modules. The Department will reimburse the Contractor for damaged modules based on module invoice price plus 10 percent. All other costs associated with installing and maintaining replacement modules will be at no additional cost to the Department.

704.03 U.1.c TRAFFIC CONTROL COURSE **PAGE 410** **3/18/11**

Delete Section 704.03 U.1.c in its entirety and insert the following:

c. **Traffic Control Course**. The course prescribed in Section 704.03 U.1.a (1) above shall be the American Traffic Safety Service Association (ATSSA) Traffic Control Supervisor Course, American General Contractor (AGC) Traffic Control Supervisor Course, or the National Highway Institute (NHI) Course 380003, Design and Operation of Work Zone Traffic Control, or equal. All courses shall have a minimum of 16 hours of instruction. A valid Minnesota Department of Transportation Traffic Control Supervisor Certification will be accepted in lieu of traffic control courses listed above.

An equal course shall include the following subjects: Manual and Standard Signs used in Work Areas; Channelizing Devices and Temporary Barriers, Pavement Markings, Lighting Devices, Arrow Displays and Special Devices, and Devices Location and Placement; Layout for Traffic Control Devices, Motorist Characteristics, and Options and Alternatives; Installation and Removal of the Traffic Control Zone, and Operation and Maintenance of the Traffic Control Zone; Flagging Operations, Legal Liability and Record Keeping, and Emergency Situations. All courses shall have a minimum of 3 hours of instruction per subject.

Workshops shall be included in the above time frames covering (a) design problems, (b) installation and removal, and (c) operations and maintenance. Each session shall also include a question and answer.

704.03 X FLAGGING **PAGE 412** **2/20/09**

In Section 704.03 X delete the first paragraph in its entirety, and replace with the following:

Flaggers shall be clean, neat, and fully dressed at all times while on duty either day or night. All flagger's vests shall meet Section 107.11.

704.04 METHOD OF MEASUREMENT **PAGE 412** **3/01/13**

Insert the following at the end of Section 704.04:

F. Attenuation Device. The Engineer will measure "Attenuation Devices Type B" by the number of arrays installed. The Contractor shall include in the price bid all costs for materials, labor, equipment, relocation if required, and removal.

704.05 BASIS OF PAYMENT **PAGE 413** **10/15/10**

Delete the fourth paragraph in Section 704.05 A in its entirety and insert the following:

> If the Contractor is required to furnish special non-standard signs not shown on the Plans, a unit value agreeable to the Contractor and the Department will be established for such signs, and payment will be made according to the Contract Bid Price per sign unit. If a unit value cannot be agreed upon, payment will be made at invoice price plus 15 percent, and the sign will become the Department's property after it has been removed from service. Payment for sign supports and installation of special signs will be made according to Section 104.03.

Delete the second paragraph in Section 704.05 B in its entirety and insert the following:

> When additional traffic control devices requested by the Engineer qualify for payment according to Section 704.04 B, payment for furnishing and installing such devices will be made according to Section 104.03.

Delete the fifth paragraph in Section 704.05 B in its entirety and insert the following:

> If the Contractor is required to furnish special non-standard signs not shown on the Plans, payment will be made at invoice price plus 15 percent, and the sign will become the Department's property after it has been removed from service. Payment for sign supports and installation of special signs will be made according Section 104.03.

706.02 B.3 TYPE B, FIELD LABORATORY **PAGE 418** **10/17/08**

Delete 706.02 B.3 in its entirety and insert the following phrase:

3. Capable of an exact setting of 900 Watts of cooking power.

708.02 C.4 GRASS, HAY OR STRAW MULCH **PAGE 429** **5/15/09**

In Section 708.02 C.4.a delete the second paragraph in its entirety and insert the following:

Mulching operations shall not be performed when the wind velocity exceeds 25 miles per hour

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708.03 D METHOD OF MEASUREMENT. PAGE 432 2/20/09

In Section 708.03 D in the first sentence delete the first repeated word “actual”.

708.03 E BASIS OF PAYMENT PAGE 433 10/17/08

In the “Pay Item” Column delete the second “ECB Type 3” Pay Item and insert “ECB Type 4”.

708.07 B.2 WOVEN WIRE PAGE 438 10/21/11

In Section 708.07 B.2 delete the second sentence in its entirety.

708.07 E BASIS OF PAYMENT PAGE 440 4/17/09

In Section 708.07 E after the third paragraph add the following paragraph:

Removal of silt fence shall be paid at the price listed in the “Price Schedule PS-1” if there is no separate bid item for silt fence.

708.08 C.1 INSTALLATION PAGE 441 10/19/12

In Section 708.08 C.1 delete the third sentence beginning with “Trenching is not required…” in its entirety.

708.08 E BASIS OF PAYMENT PAGE 442 4/17/09

In Section 708.08 E after the third paragraph add the following paragraph:

Removal of fiber roll shall be paid at the price listed in the “Price Schedule PS-1” if there is no separate bid item for fiber roll.

708.10 B MATERIALS PAGE 444 4/17/09

Delete Section 708.10 B.1 in its entirety and insert the following:

1. **Aggregate**. Aggregate material for the Stabilized Construction Access will meet the following requirements:

Sieve Size	Percent Passing
4 inch	100
2 inch	0

The aggregate shall have 90 percent fractured faces.

709.03 E GEOTEXTILE REINFORCEMENT FABRIC PAGE 447 4/17/09 6/19/09

5/20/11

Delete the third paragraph in Section 709.03 E in its entirety and insert the following:

The first lift above the reinforcement fabric shall be 6 inches before compaction.

714.02 A CULVERTS AND STORM DRAINS **PAGE 450** **2/20/09**

In Section 714.02 A delete the fourth paragraph starting with “When show as conduit” in its entirety.

714.03 A.1 EXCAVATION **PAGE 451** **2/20/09**

In Section 714.03 A.1 in the fifth paragraph delete the phrase “off the Right of Way,” in its entirety.

714.03 A.2 BEDDING **PAGE 451** **2/20/09**
10/19/12

In Section 714.03 A.2 delete the second and third paragraphs in its entirety and insert the following:

> Bedding for approach pipe shall meet the conduit manufacturers’ recommendations.

Insert the following paragraph as the last paragraph in Section 714.03 A.2:

> Bedding material shall be tamped in place under both haunches of the pipe up to 15 percent of the total height by hand-held air-operated, mechanical tampers.

714.03 A CULVERTS AND STORM DRAINS **PAGE 452** **2/20/09**
1/1/12
10/19/12

Delete Section 714.03 A.7 in its entirety and insert the following:

7. **Compaction Control of Aggregate.** AASHTO T 180 shall be used to determine the maximum dry density and optimum water content.

   The moisture content of the aggregate at the time of compaction shall be not less than 2 percentage points below, nor more than 3 percentage points above the optimum moisture content.

   The aggregate shall be compacted to 90 percent of the maximum dry density.

Delete Section 714.03 A.8 in its entirety and insert the following:

8. **Construction Cover.** Cover requirements during construction operations shall meet or exceed the pipe manufacturer’s recommendations.

   Any damage to the pipe conduit due to construction traffic shall be the repaired or removed and replaced at no cost to the Department.

Delete Section 714.03 A.9 in its entirety and insert the following:

9. **Deflection Testing.** All metal and thermoplastic pipe used for mainline and paved intersecting roadways shall be deflection tested a minimum of thirty days after the pipe is installed. The Contractor shall pass a nine point mandrel or other approved object through the pipe to check for deformation. The deformation test shall take place under the observation of the Engineer. The mandrel diameter shall not be less than 95% of the inside diameter of the pipe. If the pipe has deformed more than 5%, it shall be replaced. All cost associated with replacing the pipe shall be at the Contractor's expense. Another thirty day waiting period will commence upon installation of the replacement pipe prior to retesting.

   Metal and thermoplastic pipe used for approaches shall be visually inspected, and at the Engineer's discretion, may require deflection testing.

714.03 D BRIDGE APPROACH DRAINS **PAGE 454** **2/20/09**

Delete the first paragraph in its entirety starting with "Construction of bridge".

714.03 E EDGE DRAINS **PAGE 454** **2/18/11**

In the first paragraph of Section 714.03 E after the second sentence insert the following sentence, "Double drains shall be outletted at approximate intervals of 500 feet and at low points in the flow line of the edge drain."

714.04 A CULVERTS AND STORM DRAINS **PAGE 455** **2/20/09**

Delete Section 714.04 A in its entirety and insert the following:

A. Culverts and Storm Drains. Where new pipe is specified, it will be measured by the Linear Foot along the top of the pipe. Flared end sections will not be measured separately but will be considered as part of the conduit. Each conduit will be measured to the nearest foot.

Pipe extensions of different types and sizes will be measured by the Linear Foot in place. End sections will be measured by the number of units installed.

Relaid pipe of different types and sizes will be measured by the Linear Foot in place. Relaid end sections will be measured by the number of units installed.

Branch connections and elbows will be included in the length measured for pipe.

Excavation, disposal of excess excavation, bedding and backfill for pipe will not be measured for payment.

Grates will be measured by the number of units installed.

714.04 A CULVERTS AND STORM DRAINS **PAGE 455** **1/1/12**

Insert the following paragraph at the end of Section 714.04 A:

Removal of all pipes will be measured and paid for in accordance with Section 202.

714.05 BASIS OF PAYMENT **PAGE 456** **2/20/09**

7/1/12

In Section 714.05 insert the following Pay Items and Pay Units:

PAY ITEM	PAY UNIT
Pipe Conduit__inch	Linear Foot
Pipe Conduit__inch Storm Drain	Linear Foot
Pipe Conduit__inch Approach	Linear Foot

722.03 J BACKFILL **PAGE 459** **3/26/10**
10/15/10
10/19/12

Delete Section 722.03 J in its entirety and insert the following:

J. **Backfill.** The Contractor shall deposit and compact the backfill in lifts not to exceed 6 inches. The Contractor shall meet the requirements for compaction control as specified in Section 714.03 A.7.

724.03 B EXCAVATION AND TRENCHING **PAGE 462** **3/26/10**
10/19/12

In Section 724.03 B.3 delete the last sentence in its entirety and insert the following:

The Contractor shall place this material in lifts not to exceed 6 inches. The Contractor shall meet the requirements for compaction control as specified in Section 714.03 A.7.

748.03 A.5 USE OF WATER **PAGE 470** **2/18/11**
5/20/11

In Section 748.03 A.5 delete the first sentence in its entirety.

748.03 A.7 CURING **PAGE 470** **2/18/11**
5/20/11

In Section 748.03 A.7 insert the following sentence at the beginning of the paragraph: “When weather conditions cause rapid drying of the pavement surface, a fine mist or fog surface shall be applied to the concrete surface for interim curing.”

750.02 MATERIALS. **PAGE 472** **10/21/11**

In Section 750.02 insert the following Item and Section:

Item	Section
Detectable Warning Panels	885

750.03 CONSTRUCTION REQUIREMENTS **PAGE 472** **10/21/11**

Delete Section 750.03 K. in its entirety and insert the following:

K. **Detectable Warning Panels.** The panels shall be installed according to the manufacturer's recommendations.

1. **Construction.** The Detectable Warning Panels shall have a minimum size of 1 foot by 1 foot. The panels shall consist of a surface of truncated domes aligned in a square grid pattern.

2. **Dome Size.** Truncated domes in a detectable warning surface shall have a base diameter of 0.9 inch minimum to 1.4 inches maximum, a top diameter of 50 percent of the base diameter minimum to 65 percent of the base diameter maximum, and a height of 0.2 inch.

3. **Dome Spacing.** Truncated domes in a detectable warning surface shall have a center-to-center spacing of 1.6 inches minimum and 2.4 inches maximum and a base-to-base spacing of 0.65 inches minimum measured between the most adjacent domes on the square grid.

4. **Dome Alignment.** The rows of truncated domes in a detectable warning surface shall be aligned to be perpendicular to the grade break of the curb ramp.

5. **Size.** Detectable warning surfaces shall extend 24 inches in the direction of travel and the full width of the curb ramp landing.

6. **Friction.** Panels shall have a minimum coefficient of friction of 0.80.

7. **Rail Crossings.** The detectable warning surface shall be located so that the edge nearest the rail crossing is 6 feet minimum and 15 feet maximum from the centerline of the nearest rail. The rows of the truncated domes in the detectable warning surface shall be aligned with the direction of wheelchair travel.

750.03 F USE OF WATER **PAGE 473** **2/18/11**
5/20/11

In Section 750.03 F delete the first sentence in its entirety.

750.03 H CURING **PAGE 473** **2/18/11**
5/20/11

In Section 750.03 H insert the following sentence at the beginning of the paragraph: "When weather conditions cause rapid drying of the pavement surface, a fine mist or fog surface shall be applied to the concrete surface for interim curing."

752.03 B INSTALLING LINE POSTS **PAGE 475** **10/15/10**

In Section 752.03 B delete the sixth paragraph in its entirety and insert the following:

> When fence line posts are driven, the post top shall be protected against damage. Posts damaged during handling or driving shall be removed and replaced at the Contractor's expense.

752.05 BASIS OF PAYMENT **PAGE 477** **10/15/10**

In Section 752.05 insert the paragraph “Each fence terminal will be counted and paid for as a double brace assembly.” after the first paragraph.

754.03 E.1 GENERAL **PAGE 481** **1/1/12**

Insert the following paragraph at the end of Section 754.03 E.1:

The Contractor shall use the same Breakaway Coupler System throughout the project.

754.04 METHOD OF MEASUREMENT **PAGE 487** **2/18/11**

In Section 754.04 insert the following:

O. **Mile Posts.** Mile posts will be measured by the number of mile posts as shown in plans, completed in place, and accepted by the Engineer.

P. **Reference Markers.** Reference markers will be measured by the number of reference markers as shown in plans, completed in place, and accepted by the Engineer.

754.04 C BREAKAWAY BASES **PAGE 488** **1/1/12**

In Section 754.04 C delete the bid item “Galvanized Steel Post” in its entirety and insert the following bid items:

"Steel Galv Posts - Telescoping Perforated Tube", "Galv Steel Post - Standard Pipe", and "Galv Steel Posts - W-Shape Posts (Two or More)"

754.05 BASIS OF PAYMENT **PAGE 489** **2/18/11**

In Section 754.05 delete the first pay item and pay unit and insert the following:

Flat Sheet for Signs, Type II, III A, III B, or IX Reflective Sheeting	Square Foot

In Section 754.05 delete the second pay item and pay unit and insert the following:

Panel for Signs - Type II, III A, III B, or IX Reflective Sheeting	Square Foot

In Section 754.05 insert the following pay item and pay unit following “Overlay Panel” pay item and pay unit:

Overlay Panel, Type IX Reflective Sheeting	Square Foot

In Section 754.05 insert the following as the last two pay items and pay units:

Interstate Mile Posts – Type__	Each
Reference Markers – Type__	Each

754.04 N RESET MILE POST **PAGE 489** **10/21/11**

Delete Section 754.04 N in its entirety and insert the following:

N. **Reset Mile Post and Reference Marker.** The items “Reset Mile Post” and “Reset Reference Marker” will be measured by the number of locations at which a mile post and reference marker has been reset. The quantities measured will be paid for at the contract price and shall be full compensation for all labor, equipment, and material necessary to complete the work.

762.04 D.1.b APPLICATION DATES AND TEMPERATURES PAGE 494 10/21/11

In Section 762.04 D.1.b delete the title “Application Dates and Temperatures” in its entirety and insert “Application”.

At the end of Section 762.04 D.1.b insert the paragraph:

The fog coat on rumble strips shall be given a minimum curing period of 48 hours prior to applying permanent striping.

762.04 D.1.c RATE OF APPLICATION PAGE 494 10/21/11

In the Second sentence in Section 762.04 D.1.c delete the number “8” in its entirety and insert “10”.

762.04 D PAVEMENT MARKING APPLICATION PAGE 494 3/26/10

In Section 762.04 D.1.c delete the first sentence in its entirety and insert the following:

> One gallon of paint shall cover a 4-inch wide stripe for a length of 260 to 300 feet, depending upon pavement surface texture.

762.04 D.2 PLASTIC PAVEMENT MARKING FILM PAGE 496 2/20/09

In Section 762.04 D.2.a delete the first sentence in its entirety.

In Section 762.04 D.2.a delete the second sentence in its entirety and insert the following:

> The permanent marking film shall be installed in accordance to the manufacturers’ temperature recommendations. The permanent marking film shall not be placed over painted markings.

In Section 762.04 D.2.c delete the fourth sentence in its entirety.

In Section 762.04 D.2.d delete the third sentence in its entirety and insert the following:

> Short Term Type R and Short Term Type R-WR shall be installed in accordance to the manufacturers’ temperature recommendations.

In Section 762.04 D.2.d delete the fourth sentence in its entirety and insert the following:

> If the temperature falls below the manufacturers’ temperature recommendations, short-term paint shall be substituted and paid for as “Short Term IN Line -- Type NR.”

In Section 762.04 D.2.d delete the sixth sentence in its entirety and insert the following:

The short-term paint substitution shall cease and installation of “Short Term IN Line -- Type NR” shall proceed as soon as the temperature reaches the manufacturers’ temperature recommendations.

762.04 D.3 PREFORMED PATTERNED PAVEMENT MARKING FILM

PAGE 497 **2/20/09**

In Section 762.04 D.3.a delete the first sentence in its entirety.

In Section 762.04 D.3.a delete the second sentence in its entirety and insert the following:

The permanent marking film shall be installed in accordance to the manufacturers’ temperature recommendations. The permanent marking film shall not be placed over painted markings.

In Section 762.04 D.3.c delete the fifth sentence in its entirety.

762.04 D.6.b GENERAL **PAGE 498** **10/21/11**

Delete the sixth paragraph in Section 762.04 D.6.b starting with “When permanent pavement…” in its entirety and insert the following:

When permanent pavement markings are to be epoxy paint, and short-term pavement marking paint is used, the paint and beads shall be applied as required and at the rate specified in Section 762.04 D.1.c. Removal of the short-term pavement markings shall not be required prior to placing the epoxy paint.

762.04 D.6.c EPOXY PAINT AND GLASS BEADS **PAGE 498** **5/15/09**
10/21/11

After the first paragraph of 762.04 D.6.c add the following paragraph in its entirety:

Before placement of epoxy material, any bituminous surface material shall be in place for a minimum of 14 days.

764.03 CONSTRUCTION REQUIREMENTS **PAGE 507** **3/26/10**

Delete the first five paragraphs in Section 764.03 A in its entirety and insert the following:

A. General. The guardrail shall be installed to produce a smooth continuous line with uniform height.

Guardrail posts shall be installed where staked and to the depth specified. Posts shall be set plumb with the front faces uniformly aligned.

All backfill shall be an approved material placed and compacted in 8-inch layers, using a mechanical tamper with an appropriate sized tamping head.

When guardrail posts are removed and not replaced in the same hole, the hole shall be backfilled with approved material. When the existing surround surface is bituminous, a maximum of 2 inches of cold mix or hot mix bituminous material shall be placed at the top of the hole to match existing surrounding surface as approved by the Engineer.

Hot bituminous pavement with a maximum thickness of 2 inches shall be placed prior to guardrail post installation, where applicable. All post holes for the new or reset guardrail shall be drilled

through the hot bituminous pavement. The post may then be installed in the remaining material by augured holes or driving.

When posts are installed in augured holes, the holes shall be backfilled with approved material without displacing the post alignment. The surplus excavated material shall be disposed of at locations acceptable to the Engineer.

When posts are driven the diameter of the drilled hole in the hot bituminous pavement shall be sufficient so when the soil around a post heaves up while the post is driven, the remaining asphalt will not move. A suitable head shall be used to prevent damage to the post while being driven. Damaged posts shall be replaced at the Contractor's expense. The post being replaced shall be installed by drilling. A post cap must be used when minor vertical adjustments are made using a sledgehammer or maul.

When the posts are in place the contractor shall then place a 2 inch maximum thickness of cold mix or hot mix bituminous material around each post, in the area where the asphalt was drilled through, to match the surrounding surface as approved by the Engineer.

764.03 I ATTENUATING CRASH CUSHIONS **PAGE 511** **2/20/09**

In Section 764.03 I in the sixth sentence in the third paragraph delete the phrase "eight sets of".

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800 MATERIALS **PAGE 515** **10/21/11**
1/1/12

Insert the following in Section 885:

SECTION 885
DETECTABLE WARNING PANELS

885.01 GENERAL. The Detectable Warning Panels shall be gray cast iron, concrete pavers, stainless steel, or of a composite material.

A. Gray Cast Iron. Gray cast iron panels shall have a minimum thickness of 0.3 inches and shall be in accordance with AASHTO M105, Class 35 B. The panels shall have no surface coating, and shall be allowed to transition to their natural patina.

B. Concrete Pavers. Panels shall have a minimum thickness of 0.75 inches and shall be yellow or brick red in color throughout the panel. The panels shall have a minimum compressive strength of 8000 PSI according to ASTM C 936. The panels shall have a maximum absorption of 5%, and freeze thaw testing according to ASTM C 67.

C. Stainless Steel. Panels shall have a minimum thickness of 0.5 inches and shall be yellow or brick red in color. Any surface applied coating must be on the panel at the time of manufacture. Surface coatings shall be powder-type and baked on the surface of the panel per manufacturer's recommendations. Field-applied surface coatings and/or paint will not be accepted. The panels shall show no signs of deterioration or other defects from salt spray after 1,000 hours of exposure according to ASTM B 117.

D. Composite. Panels shall have a minimum thickness of 0.14 inches and shall be yellow or brick red in color throughout the panel. Panels shall have a minimum compressive strength of 25,000 PSI according to ASTM D 695. Panels shall have a minimum flexural strength of 25,000 PSI according to ASTM D 790. Panels shall have a minimum tensile strength of 11,500 according to ASTM D 638. The panels shall show no signs of

deterioration or other defects from salt spray after 1,000 hours of exposure according to ASTM B 117. Panels shall have a maximum water absorption of 0.07% according to ASTM D 570.

802.01 F TESTS ON CONCRETE **PAGE 532** **10/15/10**

In Section 802.01 F.6 insert the following sentence "A correction factor of 0.92 for compressive strength shall be applied to 4x8 inch concrete cylinders." following the second sentence in the first paragraph.

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816 AGGREGATES **PAGE 539** **10/21/11**
7/1/12

Insert the following in Section 816:

816.04 AGGREGATE FOR MICRO SURFACING.

A. General. The mineral aggregate used shall be of the type and grade specified below for Micro Surfacing. The aggregate shall be manufactured crushed stone such as granite, slag, limestone, or other high quality aggregate or combination thereof.

B. Sampling and Testing.

Sampling	AASHTO T 2
Reducing Sample to Test Size	AASHTO T 248
Sieve Analysis	AASHTO T 27

C. Gradation. The aggregate, including natural fines, shall meet the referenced gradation requirements when tested by AASHTO methods T 11.

SIEVE SIZE	TYPE II %PASSING	TYPE III %PASSING	STOCKPILE TOLERANCE
3/8"	100	100	-
#4	90 -100	70-90	± 5%
#8	65 – 90	45-70	±5%
#16	45 – 70	28-50	±5%
#30	30 – 50	19-34	±5%
#50	18 – 30	12-25	±4%
#100	10 – 21	7-18	±3%

#200	5 – 15	5-15	±2%

After the target gradation has been submitted (which is the gradation that the mix design is based on), then the percent passing each sieve shall not vary by more than the stockpile tolerance for each individual sieve and still remain within the gradation band.

The stockpile shall be approved for use based on five gradation tests according to AASHTO T 27. If the average of the five tests are within the gradation tolerances, then the materials will be approved for use. If the average of the five tests is not within the gradation tolerances, the contractor will be given the choice to either remove the material or blend other aggregate with the stockpiled material to bring it into specification. Materials used in blending must meet the quality tests before blending and must be blended in a manner to produce a consistent gradation. If blending is used, it will require that a new mix design be performed.

Screening shall be required at the stockpile prior to delivery to the paving machine to prevent having oversize material in the mix.

The Contractor shall perform a gradation test every 500 tons of material produced. The gradation tests shall include the sand equivalency test.

D. Deleterious Substances - To limit the permissible amount of clay-like fines in an aggregate, a sand equivalency of 60 or higher is required when tested by AASHTO T 176. The sand equivalency test shall be performed during the gradation tests during the production of the stockpile.

E. Soundness - The aggregate shall have a weighted loss of not more than 15% when the sodium sulfate test is used or not more than 20% when the magnesium sulfate test is used. Soundness shall be tested in accordance with AASHTO T 104. The soundness test shall be preformed and accepted before the production of the stockpile.

F. Hardness - The aggregate wear, from abrasion resistance, shall be a maximum of 35%, when using AASHTO T 96 test methods. The hardness test shall be preformed and accepted before the production of the stockpile.

G. Additives. A mineral additive shall be introduced to the mineral aggregate and may be any recognized brand of non air-entrained portland cement, fly ash or hydrated lime all free of lumps, or other approved mineral additive. It may be accepted upon visual inspection. The amount of mineral additive needed shall be determined by the laboratory mix design and will be considered as part of the material gradation Requirement. The mineral additive will not be paid for directly, but shall be incidental to the bid unit price of “Aggregate for Micro Surfacing”.

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816 AGGREGATES **PAGE 539** **10/21/11**
7/1/12

Insert the following in Section 816:

816.05 AGGREGATE FOR SLURRY SEAL.

A. General. The mineral aggregate used shall be of the type and grade specified below for slurry seal coats. The aggregate shall be manufactured crushed stone such as granite, slag, limestone, or other high quality aggregate or combination thereof. To assure the material is totally crushed, 100 percent of the parent aggregate will be larger than the largest stone in the gradation to be used.

B. Sampling and Testing.

Sampling	AASHTO T 2
Reducing Sample to Test Size	AASHTO T 248
Sieve Analysis	AASHTO T 27

C. Gradation Requirements. The aggregate shall meet the referenced gradation requirements when tested by AASHTO methods T 11 and T 27. The job mix (target) gradation shall be within the band shown in the following table:

SIEVE SIZE	TYPE II %PASSING	TYPE III %PASSING	STOCKPILE TOLERANCE
3/8”	100	100	-
#4	90 -100	70-90	± 5%
#8	65 – 90	45-70	±5%
#16	45 – 70	28-50	±5%
#30	30 – 50	19-34	±5%
#50	18 – 30	12-25	±4%
#100	10 – 21	7-18	±3%
#200	5 – 15	5-15	±2%

After the target gradation has been submitted (which is the mix design’s gradation basis) the percent passing each sieve shall not vary by more than the stockpile tolerance and still remain within the gradation band.

The stockpile shall be approved for use based on five gradation tests according to AASHTO T 27. If the average of the five tests is within the gradation tolerances then the material will be approved for use. If the average of the five tests is not within the gradation tolerances, the contractor will be given the choice to either remove the material or blend other aggregates with the stockpile material to bring it into specifications. Materials used in blending must meet the quality tests before blending and must be blended in a manner to produce a consistent gradation. This may require a new mix design. Screening shall be required at the stockpile to prevent having oversize materials in the mix.

The Contractor shall perform a gradation test every 500 tons of material produced. The gradation tests shall include the sand equivalency test.

D. Deleterious Substances. To limit the permissible amount of clay-like fines in an aggregate, a sand equivalency of 60 or higher is required when tested by AASHTO T 176. The sand equivalency test shall be performed during the gradation tests during the production of the stockpile.

E. Soundness. The aggregate shall have a weighted loss of not more than 15% when the sodium sulfate test is used or not more than 25% when the magnesium sulfate test is used. Soundness shall be tested once during production of stockpile, in accordance with AASHTO T 104. The soundness test shall be performed and accepted before the production of the stockpile.

F. Hardness. The aggregate wear, from abrasion resistance, shall be a maximum of 35%, when using AASHTO T 96. The abrasion test is to be run on the aggregate before it is crushed. The aggregate should meet approved polishing valves. The hardness test shall be performed and accepted before the production of the stockpile.

816.03 B SPECIFIC REQUIREMENTS **PAGE 543** **2/19/10**
10/15/10

In Table II: Aggregates for Asphalt Mixes, Blotter, and Seal Coats in Section 816.03 B insert the following column between Class 41 and Class 42:

Sieve Size Percent Passing	**Chip Seal**
	41M
3”	
1-1/2”	
1-1/4”	
1”	
3/4”	
5/8”	
1/2”	
3/8”	100
No. 4	20-70
No. 8	0-17
No. 16	
No. 30	
No. 50	
No. 200	0-1.5
Shale[1]	8.0%
L. A. Abrasion[1]	40%
Plasticity Index[2]	
Fractured Faces[3]	50%
Crushed Fines[4]	

817.02 C PROCESSED VIRGIN AGGREGATE FOR BLEND **PAGE 546** **3/01/13**

Insert the following sentence at the end of the first paragraph:

Virgin aggregate shall be Class 5 Aggregate and meet the requirements in Section 816.

817.02 D PROCESSED VIRGIN AGGREGATE IN LIEU OF SALVAGED BASE
PAGE 547 **5/15/09**

In Section 817.02 D after the first sentence insert the following sentence:

The Contractor shall not substitute Class 5 Aggregate Base in lieu of Salvage Base without approval from the Engineer.

817.02 F BITUMINOUS COMBINED MATERIAL **PAGE 547** **2/18/11**

In Section 817.02 F.2 delete the first sentence in its entirety and insert the following:

The Contractor may, at his option, combine stockpiled material containing bitumen with aggregate or salvaged concrete. Stockpiled material containing bitumen shall be incorporated at a rate of 30 percent minimum to 50 percent maximum by total weight with aggregate or recycled concrete, without the required extraction sampling and testing (either initial or routine as specified in Section 302.02 B).Total weight is the combined weight of the stockpiled material containing bitumen and aggregate or salvaged concrete.

In Section 817.02 F.3 delete the first sentence in its entirety and insert the following:

If existing bituminous material from the project is incorporated into the Salvaged Base, the bituminous material shall be incorporated at a rate of 30 percent minimum to 50 percent maximum by total weight, with aggregate or recycled concrete. Total weight is the combined weight of the bituminous material and aggregate or salvaged concrete.

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818 BITUMINOUS MATERIALS **PAGE 548** **10/21/11**

Insert the following in Section 818:

818.03 BITUMINOUS MATERIALS FOR MICRO SURFACING.

A. Emulsified Asphalt. The emulsified asphalt shall be polymer or latex modified. The polymer material shall be milled or blended into the asphalt or emulsifier solution prior to the emulsification process. The latex shall be milled into the emulsion.

The emulsified asphalt and emulsified asphalt residue shall meet the requirements specified in AASHTO M 208 for CQS-1h. It shall pass all applicable storage and settlement tests and have a minimum residue after distillation of 62%. The cement mixing test will be waived for this emulsion.

B. Modifier. Special quick-setting emulsifier agents shall be milled into the asphalt emulsion.

C. Special Residue Properties. Distillation of residue will be at a temperature of 350° F for 20 minutes. Softening point of the residue shall be 135° F minimum, absolute viscosity shall be 8,000 poise minimum using the average of two bulbs with the methods of ASTM D 2171 and #13 Canon-Manning viscosity tubes.

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818 BITUMINOUS MATERIALS **PAGE 548** **10/21/11**

Insert the following in Section 818:

818.04 BITUMINOUS MATERIALS FOR SLURRY SEAL.

Emulsified Asphalt. The emulsified asphalt shall conform to Grade CQS-1h as specified in AASHTO M 140 and AASHTO M 208. The cement mixing test is waived. The CQS-1h emulsified asphalt shall also meet the following:

Material	Test	Requirement

Emulsion	AASHTO T 59	60% Minimum Residue After Distillation
Emulsion Residue	AASHTO T 49	40-100 Penetration at 77 degrees F

818.02 E ANIONIC EMULSIFIED ASPHALT **PAGE 549** **2/20/09**

In Section 818.02 E in the second table with the first column heading “Property” delete the fourth column labeled “HFRS 2P” in its entirety.

822.02 TESTING **PAGE 555** **2/19/10**

Delete Section 822.02 C in its entirety.

Delete Section 822.02 D in its entirety.

830.02 D SMOOTH WALL STEEL PIPE CULVERT **PAGE 560** **2/18/11**

Delete Section 830.02 B in its entirety and insert the following:

Smooth Wall Steel Pipe Culvert. Smooth wall steel pipe culvert shall be welded steel pipe of new material, meeting ASTM Specifications A 139, Grade B with a minimum yield strength of 35,000 psi. No hydrostatic testing will be performed. The following minimum wall thickness shall be used:

Diameter of Pipe	Minimum Wall Thickness Through Roadway Embankment
24 inches	0.312 inch
30 inches	0.406 inch
36 inches	0.469 inch
42 inches	0.500 inch
48 inches	0.563 inch
54 inches	0.656 inch
60 inches	0.719 inch
66 inches	0.813 inch
72 inches	0.875 inch

856.01 EROSION CONTROL FABRIC **PAGE 573** **2/20/09**

In Section 856.01 in second sentence in the paragraph after Table 856-1 Erosion Control blanket delete the word “with” and insert the following word “within”.

860.01 CHAIN LINK FENCE **PAGE 576** **10/15/10**

Delete Section 860.01 in its entirety and insert the following:

A. Chain link fence shall meet AASHTO M 181.

B. Chain link fabric shall be 9 gauge wire 2" mesh. Knuckled finished top and bottom. Wire shall have a minimum tensile strength of 80,000 P.S.I.

C. Top and bottom tensioning wires shall be 7 gauge steel wire with a minimum tensile strength of 80,000 P.S.I.

D. Roll-formed sections shall be in accordance with ASTM F 1043.

860.02 A BARBED WIRE **PAGE 576** **2/19/10**

In Section 860.02 A insert the following after the second sentence:

Barbed wire shall be 12-½ gauge wire with two point barbs.

860.03 STEEL POSTS **PAGE 576** **2/19/10**

In Section 860.03 A delete the second paragraph in its entirety and insert the following:

Posts shall meet ASTM A 702, Type B Steel

Posts shall be galvanized in accordance with AASHTO M 111, or painted in accordance with Section 852.

In Section 860.03 B insert the following after the first paragraph:

Angle-type end, corner, pull posts, and braces shall be galvanized in accordance with AASHTO M 111, or painted in accordance with Section 852.

880.01 C SPECIFIC REQUIREMENTS FOR WATER-BASED TRAFFIC MARKING PAINT **PAGE 584** **2/19/10**

Delete Section 880.01 C.16 in its entirety and insert the following:

16. **Acceptance.**

a. Pavement marking paint shall be preapproved. The Contractor shall obtain two, 1-pint samples of paint from each lot after the paint has been shipped to some point acceptable to the Engineer. Epoxy lined cans shall be used for sampling water based paint. Department personnel are to be notified and shall be present when each sample is obtained. The Department personnel will submit the samples to the Department's Materials and Research Division. The samples shall be submitted 30 days before the scheduled use of the marking paint. If the paint sample meets Specifications, the lot being represented by the sample will be accepted. If a paint sample fails to meet Specifications, the lot being represented by the sample will be rejected and replaced with paint that meets Specifications. All costs incurred in replacing nonspecification paint shall be at the Contractor's expense.

b. No paint shall be used that is more than 15 months old.

c. In addition to the requirements of this section, the certification supplied by the manufacturer shall include reference to the specific NTPEP test deck to which the paint formulation was applied, including NTPEP identification numbers and report numbers.

880.09 D SAMPLING RATE AND PROCEDURES **PAGE 596** **2/19/10**

In the first sentence in Section 880.09 D delete the number “15” in its entirety and insert “30”.

894.01 B SHOP SURFACE PREPARATION AND PROCESSING **PAGE 597** **10/16/09**

In Section 894.01 B.3 delete the last sentence in its entirety and insert the following:

> The coating shall meet ASTM B 921 or ASTM B 449, Class 2, 10-35 milligrams/square foot with a median of 25 milligrams/square foot as an optimum coating weight.

894.02 RETROREFLECTIVE SHEETING MATERIALS **PAGE 598** **2/18/11**

In Section 894.02 insert the following:

H. **Type IX Retroreflective Sheeting.** Type IX Retroreflective Sheeting shall meet or exceed ASTM D 4956, Type IX.

894.05 B.3 STEEL (GALVANIZED) POSTS AND ACCESSORIES **PAGE 609** **10/21/11**

In Section 894.05 B.3 add ASTM A53 to the Specification list for Standard Steel Pipe.

Material	**Specification**
Standard Steel Pipe	AASHTO M 111, ASTM A53, 270 Grade 36, and M 232

894.05 B.5 ACCESSORIES **PAGE 611** **7/17/09**

Delete Section 894.05 B.5.a in its entirety and insert the following:

> a. **Anchor Plates.** The anchor plates shall conform to ASTM A 36, 10 gauge with ASTM G-90 galvanized coating.

894.06 B.1 REFLECTIVE SHEETING **PAGE 612** **1/1/12**

In the first paragraph of Section 894.06 B.1 delete the phrase “Type III” in its entirety and insert the following “Type IX”.

Delete the second sentence of the second paragraph of Section 894.06 B.1 in its entirety and insert the following:

> Backing material shall meet Section 894.01 A.1 with the following thicknesses:

Delineator Type	Steel Plates (gage)	Aluminum Plates (inches)
A	18	0.040
B	18	0.040
C	18	0.040

D	-	0.063
E	-	0.063

894.06 C FASTENERS **PAGE 614** **1/1/12**

Delete Section 894.06 C in its entirety and insert the following:

C. **Fasteners.**

Fasteners shall be either tension pin fasteners or a round un-slotted head aluminum machine screws and vandal resistant nuts.

Aluminum tension pin fasteners shall be an aluminum alloy meeting ASTM B 211, Alloy 2024 T4 or 6061 T6.

Steel tension pin fasteners shall be a medium carbon steel with a minimum shear strength of 70,000 psi and a minimum tensile strength of 67,500 psi. They shall be galvanized according to AASHTO M 232.

Aluminum machine screws shall be an aluminum alloy meeting ASTM B 211, Alloy 2024 T4. The vandal resistant nuts shall be an aluminum alloy meeting ASTM B 211, Alloy 2011 T3.

894.08 B.2 ROUND-TAPERED OR OCTAGONAL-TAPERED TUBES
PAGE 616 **2/20/09**

In Section 894.08 B.2 delete the sixth sentence in the first paragraph in its entirety and insert the following:

Shop drawings shall be submitted in accordance with Section 105.08 after the above design has been submitted and reviewed.

894.09 DETECTABLE WARNING PANELS **PAGE 618** **7/17/09**
10/21/11

Delete Section 894.09 in its entirety.

CERTIFICATION **PAGE I, VOL 2** **5/20/11**

Delete page I in its entirety and insert the following:

COPIES OF THIS BOOK MAY BE OBTAINED FROM:

North Dakota Department of Transportation
Environmental and Transportation Services
608 East Boulevard Avenue
Bismarck, ND 58505-0700
Phone: (701) 328-2590
Fax: (701) 328-0310
Email: dotspecbook@nd.gov
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The electronic versions of:

Standard Specifications for Road and Bridge Construction, Volume I
Standard Specifications for Road and Bridge Construction, Volume II
Current Supplemental Specifications

are available at: www.dot.nd.gov

I hereby certify that this Standard Specifications Book was prepared under the Office of Project Development, compiled from specifications prepared, examined, adopted and implemented by the North Dakota Department of Transportation in accordance with established procedures, and as approved by the Federal Highway Administration.

Ronald J. Henke, P.E.
Office of Project Development

2/9/11
Date

These North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction, 2008, are hereby approved for application on highway and related constructions contracts as referenced in the contract plans or specifications, and they shall apply as noted and amended by those documents.

Approved,

Grant Levi, P.E.
Deputy Director for Engineering

2/9/11
Date

770.02 B SHOP DRAWINGS **PAGE 7, VOL. 2** **2/20/09**

In Section 770.02 B in the first sentence in the third paragraph delete the phrase “The Contractor shall submit eight sets of shop drawings on the following listed items for approval:” in its entirety and insert the following:

“The Contractor shall submit shop drawings in accordance with Section 105.08 for the following listed items for review:”

770.03 D.1 RIGID CONDUIT **PAGE 10, VOL. 2** **2/20/09**

In Section 770.03 D.1 delete the fourth paragraph in its entirety, starting with “Conduit shall be laid on”.

772.02 B SHOP DRAWINGS **PAGE 18, VOL. 2** **2/20/09**

In Section 772.02 B in the third sentence in the second paragraph delete the phrase "The Contractor shall submit eight sets of shop drawings on the following listed items for approval:" in its entirety and insert the following:

"The Contractor shall submit shop drawings in accordance with Section 105.08 for the following listed items for review:"

772.03 T TESTS AND ACCEPTANCE **PAGE 30, VOL. 2** **10/15/10**

Delete Section 772.03 T in its entirety and insert the following:

T. **Tests and Acceptance.** The Engineer will provide an inspection checklist at the preconstruction conference. When the installation is complete and at the time designated by the Engineer, an operating test shall be conducted for approval. The Contractor shall furnish instruments and personnel required for all tests, record all test results, and be present during all tests and inspections. Nighttime tests and inspections will be held when directed by the Engineer.

1. **Initial Inspection.** An initial functional inspection shall be made approximately 15 days after a written statement from the Contractor certifying that all signals or flashing beacons under the Contract are operational and the inspection checklist work is completed. When snow or ice conditions are present preventing observation of installed equipment, or when extreme cold conditions prevent proper observation of equipment operations and adjustments, the initial inspection will be delayed. The Engineer will determine when conditions have improved so the inspection can be scheduled. During the time of delayed inspection, all signals or flashing beacons in operation shall be maintained by the Contractor.

2. **Final Inspection.** A final functional inspection will be made between 30 and 60 days after the initial inspection. The Contractor will request the Engineer to schedule the final inspection. The Engineer shall notify the Traffic Operations Engineer to coordinate a time for the final inspection. The final inspection shall not be made until all items noted on the initial inspection have been corrected. Minor finish work items, such as dirt leveling, will not prevent the final inspection. The traffic signals or flashing beacons shall be in operation during this time. When snow, ice or extreme cold conditions are present preventing the proper observation of the installed equipment, the final inspection will be delayed. The Engineer will determine when the conditions have improved so the inspection can be scheduled. The Contractor shall maintain the signals or flashing beacons during the period between the initial inspection and final functional inspection.

Final Acceptance. Final acceptance will not be made until the system has been operating for 14 consecutive days after the final inspection without interruption due to malfunctions attributable to defective equipment or improper workmanship. The Contractor shall be responsible for the electrical and communications costs for the system until the traffic signals and/or flashing beacons are accepted by the Department.

895.03 A.2 MULTIPLE CONDUCTOR **PAGE 44, VOL. 2** **1/1/12**

In the first paragraph in Section 895.03 A.2 delete the phrase "NEMA Standards Publications WC-3, WC-5, WC-7," in its entirety and insert "NEMA Standards Publication WC-70".

In the third paragraph in Section 895.03 A.2 delete the phrase "WC-3" in its entirety and insert "WC-70".

895.11 E SYMMETRICAL LUMINAIRES **PAGE 50, VOL.2** **2/19/10**

Delete the first sentence in Section 895.11 E in its entirety and insert the following:

> The symmetrical luminaires shall be Holophane Symmetrical Luminaire, Catalog No. HMAO C10HP 24R9; General Electric Asymmetrical Type X209 High Mast, Catalog No. X209Cl. OL360; Quality Symmetrical Luminaire, Catalog No. VA25V-1H or equal.

896.03 C TRAFFIC SIGNAL AND FLASHING BEACON CONTROL CIRCUITS **PAGE 63, VOL. 2** **1/1/12**

In the last sentence of the first paragraph in Section 896.03 C delete the phrase “WC-5” in its entirety and insert “WC-70”.

In the first sentence of the third paragraph in Section 896.03 C delete the phrase “WC-5” in its entirety and insert “WC-70”.

In the second sentence of the third paragraph in Section 896.03 C delete the phrase “Appendix K, Method I, Table K-1 of NEMA WC-5” in its entirety and insert “Appendix E, Method 1, Table E-1 of NEMA WC-57.”

In the fourth paragraph in Section 896.03 C delete the phrase “Table 7.4.2, NEMA WC5” in its entirety and insert “Table 4-4 NEMA WC-5”.

896.07 A TRAFFIC SIGNAL STANDARDS **PAGE 64, VOL. 2** **6/19/09**

In Section 896.07 A delete the sixth sentence in the first paragraph in its entirety and insert the following:

> Fatigue Category III shall be used for Traffic Signal Standards less than a mast arm length of 40 feet, Fatigue Category II shall be used for Traffic Signal Standards equal to or greater than a mast arm length of 40 feet.