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“Standard and Supplemental Specifications for Road and Bridge Construction 2020 Edition V3.0 ” can be found at the following link:

<https://www.mdt.mt.gov/other/webdata/external/const/specifications/2020/SPEC-BOOK/2020-SPEC-BOOK-V3.0.pdf>

Specification Revisions

V3.0 April 28, 2022

The Department has revisions to 76 Standard Specifications.

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NO CHANGES TO THE PROPOSED DRAFT

FINAL ACCEPTANCE

102.07 BIDDING REQUIREMENTS

C. 2. Proposal Guarantee.

The bid bond is on the most current version of MDT-CTP-102-07-1; is signed and sealed in the proper places; a copy of the agent's Power of Attorney for the insurance company is attached; and contains the correct and complete project number; all signatures are original (stamped signatures are unacceptable). A qualified third-party surety agency must verify the proposal guarantee. Electronic bid bond verification must be submitted through AASHTOWare Project Bids and Bid ExpressTM. Contact Bid Express for more information on electronic bid bond verification.

If an error occurs with electronic bid bond verification through AASHTOWare Project Bids and Bid Express, submit the Electronic Bid Bond Form MDT-CTP-102-07-2 in Adobe PDF format via email to mdtcntplns@mt.gov prior to the bid opening. Hard copy or paper bid bonds submitted to the Department will not be accepted. Bids that include submission of a bid bond without electronic verification or Electronic Bid Bond Form CPB 102 07 will be deemed non-responsive.

~~The bid bond is on the most current version of the Department furnished form; is signed and sealed in the proper places; a copy of the agent's Power of Attorney for the insurance company is attached; and contains the correct and complete project number; all signatures are original (stamped signatures are unacceptable). If using Bid Submission via Internet and Bid ExpressTM, a qualified Surety Company must verify the Contractor bond.~~

~~An electronic bid bond may be filed in lieu of completing the paper Bid Bond area of the Proposal Bid form. Submit on the most current Department-provided hard copy Electronic Bid Bond form CPB 102 07.~~

REASON: Currently a Standard Special Provision.

COMMENTS:

NO CHANGES TO THE PROPOSED DRAFT

FINAL ACCEPTANCE

102.10 DELIVERY AND PUBLIC OPENING OF PROPOSALS

Bid Proposals are opened publicly at the place, time, and date specified in the "Invitation for Bids."

Deliver-Submit by the date and hour set for the opening of bid Proposals to the Department officials conducting the bid opening. ~~Bid Proposals received after the specified time are returned to the bidder unopened.~~

The clock designated by the Department bid opening officials determines the bid opening time.

Bid proposals will be deemed non-responsive if:

1. Proposals are received after the specified time.
2. Submitted by facsimile machines.
3. Submitted by sealed envelope.
4. Not properly addressed and identified.

~~Do not submit bid Proposals by facsimile machines.~~

~~A Proposal not properly addressed and identified is returned to the bidder after it is opened.~~

~~A. Bid Submission by Sealed Envelope. Place the bid Proposal in a sealed envelope plainly marked to indicate the contents. Proposals must be received by the Department's official conducting the bid opening before the bid opening time. Bids may be delivered to: Montana Department of Transportation, Engineering Construction Contracting Bureau, 2701 Prospect Avenue, Helena, Montana.~~

~~If mailed, the Department's mailing address is: Montana Department of Transportation, Engineering Construction Contracting Bureau, P.O. Box 201001, Helena, Montana 59620-1001.~~

~~The Contractor is solely responsible for the Proposal's delivery to the Department's official conducting the bid, prior to bid opening.~~

Submit bids via~~B. Internet Bid Submission Via~~ the Internet and Bid Express™. ~~(Optional Bid Submission Procedure)~~

No changes to items 1-5

REASON: Submission of Bid Proposals via Bid Express. Paper submittals are no longer acceptable.

COMMENTS:

PROPOSED DRAFT

103.09.1 General Definition

BID DOCUMENTATION

Bid Documentation is defined as any writings, working papers, computer printouts, computer generated and/or computer stored information, electronically stored information, charts, schedules of any kind (e.g. CPM, bar chart, etc.), and any data compilations, computerized or not, used by the bidder to determine the Contractor have bid submitted for a representative present during the opening of the bid contract. Bid documents- includes, but is not limited to, the following:

- Bidder equipment internal rates for ownership.
- Bidder overhead rates.
- Labor rates.
- Cost coding.
- Equipment and manpower loading of activities.
- Efficiency or productivity factors.
- Scheduling calculations.
- Review or analysis of the site of work.
- Analysis of how the work should be performed.
- Arithmetic extension.
- Worksheets used to prepare the bid (identifying by name and edition any software programs used to prepare them); and
- All quotations to the extent that these items were used in formulating and preparing the amount of the bid.

Bid Documents also includes identification of all manuals used by the bidder in preparing the bid for this contract, referenced by title, author, edition, date, and page or section number. The term does not include bid documents provided by the owner (e.g., plans, specifications, etc.) for use by the bidder in preparation of the bid proposal. Submit information in PDF electronic format. Paper and hard copies submitted to the Department will not be accepted.

The following requirements apply when submission of bid documents is required by the contract. The Department agrees to safeguard the bid documents, and all information contained therein, against disclosure to the fullest extent permitted by law.

FINAL ACCEPTANCE

103.09.1 General

Bid Documentation is defined in Subsection 101.03.

The following requirements apply when submission of bid documents is required by the contract. The Department agrees to safeguard the bid documents, and all information contained therein, against disclosure to the fullest extent permitted by law.

NO CHANGES TO THE PROPOSED DRAFT

FINAL ACCEPTANCE

103.09.2 Bid Documentation Inventory Affidavit and Escrow Agreement Form Submittals – for Apparent Low Bidder

A. Bid Documentation Recipients Form.

Submit the Bid Documentation Recipients Form

[<https://www.mdt.mt.gov/publications/forms.shtml#hig>] no later than 5 calendar days after the date of the bid opening (the date of the bid opening to count as the first full day). The Bid Documentation Recipients Form documents the authorized agent for the Contractor and authorized escrow agent to sign the Escrow Agreement.

B. Bid Documentation Inventory Affidavit and Escrow Agreement Affirmation Form.

Use the ~~most~~ current Department [form MDT-CON-103-09A](#) “Bid Documentation Inventory Affidavit” and Affirmation” and submit with the bid documentation: ~~submittal files to an escrow agent located in the State of Montana.~~ Follow all ~~directions~~requirements for the bid documentation ~~submittal files~~ listed on ~~form MDT-CON-103-09A~~ the Inventory and Affirmation form.

~~Use the most current Department form CSB103-09B~~ “C. Escrow Agreement.” when completing

The Department will administer, the “Escrow Agreement,” form MDT-CON-103-09B, through DocuSign to the bid documents escrow procedure. ~~authorized representatives identified on the Bid Documentation Recipients Form.~~ Follow all ~~directions~~requirements for the escrow procedure listed on ~~form CSB103-09B~~. Modified versions of the “Escrow Agreement” provided by the ~~escrow agent may be used with written approval by the CES Engineer.~~ Escrow Agreement.

The forms must be signed by an authorized agent for the bidder. These forms are available at the following web page:

~~<http://www.mdt.mt.gov/publications/forms.shtml#con>~~ <https://www.mdt.mt.gov/publications/forms.shtml#hig>

REASON: Currently a Standard Special Provision. Require escrow of bid documents to be submitted electronically.

COMMENTS:

NO CHANGES TO THE PROPOSED DRAFT

FINAL ACCEPTANCE

103.09.3 Escrow of Bid Documents

Once identified as the apparent low bidder on a contract requiring submission of bid documents, submit ~~all bid documents~~ the Bid Documentation Recipients Form.

Submit all bid documentation submittal files and the Bid Documentation Inventory and Affirmation form, to an approved escrow agent located in Helena, the State of Montana. ~~Convert electronically formatted information into paper copies. Include these paper copies as part of the~~ Only submit bid documentation. ~~Provide written notification including copies of the Bid Documentation Inventory Affidavit and the~~ as PDF files. When possible, merge the PDF files together.

Use DocuSign to sign the Escrow Agreement ~~to the Engineering Construction Contracting Bureau, within 7 business days, including (the day date of the bid opening to count as the first full day).~~ The ~~copy of the~~ Escrow Agreement administered by the Department through DocuSign, will capture the signatures of the bidder's representative, escrow agent, and MDT CES representative. The Escrow Agreement is not to be signed until bid documentation submittal files and the Bid Documentation Inventory and Affirmation form is complete and submitted to the ~~Engineering Construction Contracting Bureau~~ must contain signatures from the Escrow Agent and representative of the bidder. The Department will review the documents and return a copy of the Escrow Agreement with a signature of a Department representative to the Escrow Agent ~~escrow agent~~.

An approved escrow agent includes any business located in the State of Montana such as a banking institution, title company, or other bonded ~~storage facility business~~ which provides ~~a deposit box, vault, or other~~ secure accommodation.

~~Place the bid documents and completed Bid Documentation Inventory Affidavit in the container provided by the escrow agent. Clearly label the face for the bid documentation files. The escrow agent must hold the bid documents in trust, fulfilling fiduciary obligations to MDT and all contractors and suppliers of the container "Bid Documents" and include project. The escrow agent is responsible for holding the bidder's name, the date of submittal, the contract name, and the contract number.~~ bid documents as electronic submittal files.

If the apparent low bid, is deemed non-responsive, the second low bid will be reviewed, and the bidder will be notified in writing and will have 7 business days to comply with the above requirements.

REASON: Currently a Standard Special Provision. Require escrow of bid documents to be submitted electronically

COMMENTS:

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

103.09.4 Bid Responsiveness

The ~~copies of the bid documentation submittal files and~~ Bid Documentation Inventory Affidavit and ~~Escrow Agreement~~ Affirmation must be submitted ~~as part of the~~ to an escrow notification will be reviewed for completeness and responsiveness. ~~If the forms are~~ agent and the Escrow Agreement must be executed using DocuSign; if incomplete or ~~are~~ not submitted, the bid will be ~~considered~~ deemed non-responsive. ~~The~~ If the apparent low bid, is deemed non-responsive, the second low, responsive responsible bid will ~~then~~ be reviewed, and the bidder will be ~~required to meet~~ notified in writing and will have 7 business days to comply with the above requirements.

REASON: Currently a Standard Special Provision. Require escrow of bid documents to be submitted electronically

COMMENTS:

NO CHANGES TO THE PROPOSED DRAFT

FINAL ACCEPTANCE

103.09.5 Release of Bid Documents to the Department

The bid ~~documents~~documentation submittal files in escrow are and will remain the property of the Contractor unless a ~~Certified Claim~~certified claim is filed by the Contractor or litigation or arbitration is initiated under the contract. ~~In the event that~~If the Contractor submits a ~~Certified Claim~~certified claim or litigation or arbitration is initiated under the contract; the bid documents included in ~~the~~ escrow become the property of the Department for its use, specifically including use in preparing for and conducting of all claims, disputes, arbitration, or litigation.

Failure to submit all bid documents as defined in Subsection ~~101.03~~101.03 and the Bid Documentation Inventory ~~Affidavit and Affirmation form~~ as required, or failure to include the items indicated by the Bidder on the Bid Documentation Inventory ~~Affidavit and Affirmation form~~ in the documents that are placed in escrow, will be a material breach of the contract, is a failure to comply with a condition precedent to filing a claim or lawsuit, acts as a total and final waiver of all claims or disputes involving matters that would have been included (e.g. claims of delay, changed site conditions, loss of productivity, etc.), and subjects the Contractor to action under Section 18.3.101 ARM et seq.

~~Within 3 calendar days~~The Release of the Contract Escrow Agent's notification that the Bid Documents will be released to Bid Documentation Form is administered through DocuSign by the Department; ~~the Contractor may request. Transfer the bid documentation submittal files to the Department that~~through the State File Transfer Service. Only submit bid documentation as PDF files. When possible, merge PDF files together.

REASON: Currently a Standard Special Provision. Require escrow of bid documents to be submitted electronically

COMMENTS:

103.10 SUBCONTRACTOR REPORT

No later than 6 calendar days after the date of bid-opening (the date of bid opening to count as the first full day), the apparent low bidder must submit to ~~Engineering Construction Contracting Bureau~~ECCB, during its regular work hours, a fully completed ~~Form~~form MDT-CON-102-8 documenting all responding subcontractors, and the work quoted. Include the quoted amount for each subcontractor to be used. If no work is subcontracted, submittal of submit Fform MDT-CON-102-8 must still be submitted~~is still required. and stipulate "none" within the "subcontractor name" field.~~ If the 6th day is a holiday, turn the documentation in earlier. The DBE commitment information in Expedite must still be reported. The information provided on this form will only be used for reporting at the time of letting.

Form MDT-CON-102-8 is available at the following web page:

https://www.mdt.mt.gov/publications/forms/const_forms.shtml.

The bid proposal may be considered non-responsive and rejected if the above form(s) are not submitted within the required time frame.

REASON: The forms are electronic and submitted online.

COMMENTS:

PROPOSED DRAFT

103.11 PROPOSED AGGREGATE SOURCE(S)

No later than 7 calendar days after the date of bid opening (the date of bid opening to count as the first full day), the apparent low bidder must submit ~~via email to ECCB (mdtcps@mt.gov),~~ during its regular work hours, a fully completed Proposed Aggregate Source (Form MDT-CON-106-02-3) for each aggregate source the bidder used to prepare its bid or a subcontractor used to prepare its quote, if used by the bidder for its bid. If the 7th day is a holiday, turn the documentation in earlier.

Form MDT-CON-106-02-3 is available at the following web page:

https://www.mdt.mt.gov/publications/forms/const_forms.shtml

The bid proposal may be considered non-responsive and rejected if the above form(s) are not submitted within the required time frame.

REASON: The forms are electronic and submitted online.

COMMENTS:

FINAL ACCEPTANCE

103.11 PROPOSED AGGREGATE SOURCE(S)

No later than 7 calendar days after the date of bid opening (the date of bid opening to count as the first full day), the apparent low bidder must submit ~~to ECCB via email to ECCB (mdtcps@mt.gov),~~ during its regular work hours, a fully completed Proposed Aggregate Source (Form MDT-CON-106-02-3) for each aggregate source the bidder used to prepare its bid or a subcontractor used to prepare its quote, if used by the bidder for its bid. If the 7th day is a holiday, turn the documentation in earlier.

Form MDT-CON-106-02-3 is available at the following web page:

https://www.mdt.mt.gov/publications/forms/const_forms.shtml

The bid proposal may be considered non-responsive and rejected if the above form(s) are not submitted within the required time frame.

NO CHANGES TO THE PROPOSED DRAFT

FINAL ACCEPTANCE

105.03.3D. PLANT MIX INCENTIVE ADJUSTMENT

Plant mix incentives are paid based on an anticipated increased service life due to high quality plant mix volumetric properties, compaction, and ride. Adjustments to the incentives will be made in accordance with Table 105-6 when the anticipated increased service life is not expected to be realized due to poor results in one or more of the other plant mix properties.

**TABLE 105-6
INCENTIVE ADJUSTMENT TABLE**

	NO INCENTIVE ADJUSTMENT (ADJUSTMENT FACTOR = 1)	ADJUSTMENT FACTOR (CANNOT BE GREATER THAN 1)	NO INCENTIVE ALLOWED (ADJUSTMENT FACTOR = 0)
VOLUMETRICS	≤ 7	$F_V = -0.125P_V + 1.875$	≥ 15
COMPACTION	≤ 7	$F_C = -0.125P_C + 1.875$	≥ 15
RIDE SPECIFICATION CATEGORY I	≤ 65	$F_R = -0.1(IRI) + 7.5$	≥ 75
CATEGORY II & III	≤ 80	$F_R = -0.1(IRI) + 9$	≥ 90

Where:

P_V = Average of all positive P values for all the plant mix volumetric properties (VMA, VFA, VTM, and D/A) evaluated under Section 105.03.2 on the project.

P_C = Average of all positive P values for compaction evaluated under Section 105.03.2 on the project.

IRI = Weighted average International Roughness Index (IRI) for all travel lanes evaluated for surface smoothness on the project. When multiple ride categories are included on a project, adjustment factors will be determined for each. A weighted average of all adjustment factors will then be determined for use in the overall incentive adjustment equation below.

The Department will evaluate plant mix surfacing in accordance with all applicable contract requirements. Total incentives for plant mix volumetric properties, compaction, and ride will be adjusted based on the overall quality of all the plant mix paving properties. The overall incentive adjustment will be calculated as follows:

$$I_a = I (F_V)(F_C)(F_R).$$

I = Total unadjusted incentive amount.

FV = Adjustment Factor resulting from plant mix volumetric properties.

FC = Adjustment Factor resulting from plant mix compaction.

FR = Adjustment Factor resulting from ride.

Quality incentive allowances will be adjusted in accordance with this specification and then used to offset any price reductions. Any quality incentive allowance remaining after all price reductions have been deducted will be paid for as a lump sum when all work on the plant mix bid item is complete.

REASON: Currently a Standard Special Provision.

COMMENTS

NO CHANGES TO THE PROPOSED DRAFT

FINAL ACCEPTANCE

105.10 AUTHORITY AND DUTIES OF INSPECTORS

Inspectors, Technicians, and Aides cannot:

1. ~~RA.~~ Revoke, alter, enlarge, or relax any requirements of the contract.
2. ~~B. Final approve~~ Give final approval or accept any portion of work.
3. ~~C.~~ Issue instructions contrary to the contract.

~~Only the Project Manager is authorized to make contract changes, waive or alter the contract specifications, and then only if it is made in writing. Ensure that the change, waiver, or alteration is in writing before taking action on it.~~

Waiving of specifications or changes to the contract require a completed change order.

REASON:

COMMENTS:

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

106.02.3 Contractor-Furnished Sources

Obtain Department approval for any special borrow, concrete, surfacing, bituminized, and or riprap aggregates ~~aggregate~~-sources prior to use. Arrange with the Project Manager for representative samples to be taken and witnessed by the Department at least 30 calendar days before beginning production. Provide all equipment and labor necessary for the sampling. See Subsection [106.10](#) for the number of Department furnished tests at Department expense.

B. Concrete, Surfacing, and Bituminized Aggregate Source Approval. The Department will process and test samples to determine the suitability of the material in accordance with Subsections [701.01](#), [701.02.1](#) and [701.03.1](#).

C. Riprap Source Approval. The Department will approve proposed sources of riprap. Furnish riprap from sources that meet the material requirements of subsection 701.06. Passing wear (ASTM C535), soundness (AASHTO T 104), absorption (AASHTO T 85), and specific gravity (AASHTO T 85) results are mandatory for Department approval of riprap sources. Do not place riprap without approval. Submit a 100-pound sample of material representative of the riprap source. Crush the sample so that the entire sample passes a 2" sieve. Alternatively, 2" core samples may be submitted. Assume all risk for producing riprap from sources not meeting subsection 701.06.

REASON: Spec Update. (Currently a Standard Special Provision)

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

108.01.1 Subcontracting

Include ~~in the written subcontract or assignment or in a separate written document with the subcontract or assignment~~ the following language in the subcontract:

“In consideration of being awarded this subcontract, and in consideration of having this subcontract approved by the State of Montana, the Subcontractor hereby assigns to the State of Montana any and all claims or causes of action for any antitrust law violations, or damages arising there from, as to goods, materials, and services purchased under the terms of this subcontract or any change order that may result from this subcontract.”

Do not hire or use in any manner a person or organization that performed any part of the design work for the Department unless first approved by the Department ~~in writing~~.

REASON: Send Subcontracts electronically: (Currently a Standard Special Provision)

COMMENTS:

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

108.01.2 Contract Performance

Do not allow a Subcontractor at any contract tier to start work until ~~its~~ subcontract is consented to by the CES Engineer. ~~Include one~~ Submit fully executed subcontracts in electronic DocuSign PDF format. Scanned PDF subcontracts are not acceptable. Include the Consent of Surety language and ~~certified copy~~ Subcontractor Checklist as part of the subcontract, ~~a letter from the surety consenting to agreement, referenced on the subcontract, and the Subcontractor's Checklist.~~ Subcontracting Resources webpage:

<https://www.mdt.mt.gov/business/contracting/resources.shtml>

Inform the Subcontractor of all the contract provisions, and that the Subcontractor is bound by all terms of the prime's contract with the Department. Provide the Subcontractor a copy of all the contract provisions including the applicable ~~prevailing wage~~ Federal Prevailing Wage rates and Required Contract Provisions FHWA 1273. Include in the subcontract the following language:

"The Subcontractor agrees to comply with all of the labor provisions contained in the attached ~~Special~~ Required Contract Provisions and Federal Prevailing Wage/Davis Bacon Wage Decision."

All subcontractors are agents of the Contractor. The Contractor is responsible for all work, material furnished, project documentation provided by, and indebtedness incurred by its subcontractors.

Department approved ~~Written~~ consent to subcontract, assign or transfer the contract does not release the Contractor from liability under the contract and bond.

REASON: Require the use of DocuSign and to send Subcontracts electronically: (Currently a Standard Special Provision)

COMMENTS:

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

108.03.1 General

Obtain written approval a minimum of 5 calendar days before starting night work. Provide work area flood-non-glare lighting for night work ~~and do not rely solely on equipment lights, meet the requirements of Subsection 210.03.8~~. Night work approval may be rescinded at any time.

REASON: Currently a Standard Special Provision and add a requirement to give advance notice of 5 days.

COMMENTS:

PROPOSED DRAFT

108.03.2 Project Schedules

1. **Preparation and Submission of Schedule.** Prepare an initial schedule using Primavera P6 and submit ~~an the~~ electronic file ~~in compatible with Primavera P6 or other Primavera product which generates a an .xer file type format.~~. Once an accepted baseline schedule is submitted, furnish one ANSI D (24-inch by 36-inch) paper copy. Submit all items listed in Subsection [108.03.2\(B\)\(3\)](#).

REASON: Schedules created in other software not opening correctly in Primavera.

COMMENTS:

FINAL ACCEPTANCE

B. CPM Scheduling

Develop, maintain and provide a detailed time-scaled computer-generated progress schedule using the critical path method ~~that is compatible with Primavera P6~~ in ~~or other Primavera product which generates a .xer file type~~.

1. **Preparation and Submission of Schedule.** Prepare an initial schedule using Primavera P6 and submit ~~an the~~ electronic file in compatible with Primavera P6 or other Primavera product which generates a .xer file type format. Once an accepted baseline schedule is submitted, furnish one ANSI D (24-inch by 36-inch) paper copy. Submit all items listed in Subsection 108.03.2(B)(3).
4. **Schedule Updates and Progress Payments.** Schedule and attend monthly project progress meetings to compare the schedule to the actual finish dates of completed activities, the remaining duration of uncompleted activities and the proposed logic and/or time estimate revisions. Provide the status of activities at these meetings, and the schedule updates based on this information, once it has been verified.

Each month of the project, one week before the end of the project's monthly estimate cycle, submit an electronic .xer file using Primavera P6 ~~or other Primavera product which generates a .xer file type~~ and a .PDF file containing:

PROPOSED DRAFT

109.04.1 Unit Price or Agreed Price

Extra work performed under Subsections [104.02](#) and [104.03](#) is paid for at the unit price or price agreed upon and specified in the ~~change order~~extra work order.

When extra work is performed on a unit or agreed price basis by an approved subcontractor by direction from an extra work order, the Prime Contractor may not receive administrative allowances for more than the percentages shown in Table 109-2. Bid items in the awarded contract are not eligible for these administrative allowances.

Force account basis under Subsection [109.04.2](#) will be used if a change order with an agreed price is not signed by the Contractor.

TABLE 109-2
SUBCONTRACTING - ADMINISTRATIVE ALLOWANCES

Extra Work - Subcontractor	Administrative Allowance
\$0 to \$1,000	10%
\$1,000.01 to \$10,000	\$100 plus 5% of excess over \$1,000
Over \$10,000.01	\$550 plus 3% of excess over \$10,000

REASON: Recommend by EPMs for consistency across all Districts and make similar to how force account administrative allowances are paid.

COMMENTS: Disagree with the proposed spec and the amount in the administrative allowance table should not be required. The Administrative Allowance % should be raised but only apply to force account work.

FINAL ACCEPTANCE

109.04.1 Unit Price or Agreed Price

Extra work performed under Subsections [104.02](#) and [104.03](#) is paid for at the unit price or price agreed upon and specified in the ~~change order~~ extra work order.

When extra work is performed on a unit or agreed price basis by an approved subcontractor by direction from an extra work order, the Prime Contractor may not receive administrative allowances for more than the percentages shown in Table 109-2. Bid items in the awarded contract are not eligible for these administrative allowances.

Force account basis under Subsection [109.04.2](#) will be used if a change order with an agreed price is not signed by the Contractor.

TABLE 109-2
SUBCONTRACTING - ADMINISTRATIVE ALLOWANCES

Extra Work - Subcontractor	Administrative Allowance
\$0 to \$1 <u>5</u> ,000	10%
\$1,000.01 to \$10,000	\$100 plus 5% of excess over \$1,000
Over \$10,000.01 <u>\$15,000</u>	\$1,500 <u>550</u> plus 35 <u>5</u> % of excess over \$10,000 <u>\$15,000</u>

NO CHANGES TO THE PROPOSED DRAFT

FINAL ACCEPTANCE

109.06 PARTIAL PAYMENTS

If the Contractor becomes delinquent in any monetary contractual obligations (e.g. prompt payment upon satisfactory completion of work, payment to owners of materials sources, etc.), the Department may withhold ~~unpaid contract funds~~ payment from each monthly estimate ~~thereafter~~ until the delinquency ~~is resolved or the amount of the delinquency~~ has been ~~withheld~~. ~~The amount of the withholding will not exceed the amount of known delinquency but, depending on the amount of the delinquency and the amount of the monthly estimate, may be in the full amount of that monthly estimate~~ resolved. In the event the delinquency involves nonpayment to a Subcontractor or supplier, the Department also may order forfeiture of the contract bond, or take action under Subsection [108.09](#).

The Department will release the withheld amounts to the Contractor upon the Engineer's receipt of a ~~notarized~~ statement from the entity to whom the delinquency was owed stating that the delinquency has been ~~satisfied in full or, in the event the entity has received partial payment of~~ resolved. ~~If the delinquency, that portion of the~~ is not resolved, the Department may also release withheld ~~amount may be released~~ amounts to the Surety, if requested in writing by the Surety.

REASON: Spec update

COMMENTS:

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

109.06.1 Billing Cycle

Pay all subcontractors within ~~seven~~7 days after receipt of a periodic or final payment from the Department. ~~Payment must be;~~ for the full amount due the subcontractor ~~(including retainage) under the subcontract~~ (including retainage) for work performed or materials provided that were included in the periodic or final payment according to the provisions of Section 28-2-2103(2)(a) MCA. A subcontract may not provide for a time longer than the law's mandated 7 days.

REASON: Spec Update. Currently a Standard Special Provision

COMMENTS:

NO CHANGES TO THE PROPOSED DRAFT

FINAL ACCEPTANCE

109.12 TRAINING PROGRAM

Establish a Training Program documenting the anticipated length and type of training for each classification. The Training Program and any subsequent changes must be approved by the ~~Department's Office of Civil Rights and the FHWA.~~Department's Construction Engineering ServicesCES Bureau.~~Department's Office of Civil Rights and the FHWA~~ The program will receive approval if it is reasonably calculated to meet the equal employment opportunity obligation of the Contractor and to qualify the trainee for journey person status. Apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training will also be considered acceptable provided they are being administered in a manner consistent with the equal employment obligations of federal-aid highway construction contracts.

Submit a Training Program 15 calendar days prior to commencing any training-related construction activities for approval. Specify the number of trainees per classification and expected start dates for training. The Department will credit the Contractor for each trainee that becomes enrolled in an approved program and is employed on the project site covered by the contract.

Obtain approval or acceptance of the Training Program from the ~~Department's Construction Engineering ServicesCES Bureau.~~Department's Office of Civil Rights prior to commencing work associated with the Training Program.

The Contractor may submit a written request to the Project Manager and the Construction Engineering ServicesCES Bureau ~~MDT OJT Program Manager~~ requesting additional hours of training. The Department will evaluate the request based on the remaining activities providing training opportunities and the value of additional training towards further developing the trainees' skill level. Additional hours must be reflected and approved in an updated Training Program.

Each trainee must receive a minimum of 500 hours of on-the-job training aimed at developing full journeypersons in the type of trade or job classification involved, but hours are not to exceed those specified in the approved Training Program. No employee is to be employed as a trainee in any classification that has been successfully completed previously or in which the trainee has been employed as a journey person. Classifications such as clerk-typists or secretarial positions are not eligible for the Training Program. Training is permissible in ~~lower level~~lower-level management positions such as office engineers, estimators, timekeepers, etc., where the training is provided on the project site and is oriented toward construction applications. Training in the Laborer classification may be permitted provided that significant and meaningful training is provided ~~and approved by FHWA.~~

REASON: Spec Update.

COMMENTS:

PROPOSED DRAFT

202.03.1 Removal of Bridges and Major Drainage Structures

- ~~B. **Removal of Substructures.** Remove or cut off piles and substructures to 3 feet (915 mm) below the finished grade or existing ground surface elevation, whichever is lower. Shape and contour the removal areas to blend with the surrounding terrain.~~
- ~~B. Do not damage new work while removing existing structures. **Removal of Substructures.** Remove existing piers/footings or other substructure located within the ordinary high-water mark to at least 3 feet (915 mm) below the existing thalweg (lowest channel bottom elevation) of the stream, or completely. Remove existing piers/footings or other substructure located outside the ordinary high-water mark to at least to 3 feet (915 mm) below the finished grade or existing ground surface elevation, whichever is lower or according to plans. Shape and contour disturbed areas to blend with the surrounding terrain or as shown on plans.~~

208.03.3 Regulations and Permitting Stream Protection Act 124 (SPA 124)

~~5. Remove existing piers/footings or other substructure located within the ordinary high-water mark to at least 3 feet (915 mm) below the existing thalweg (lowest channel bottom elevation) of the stream, or completely. Remove existing piers/footings or other substructure located outside the ordinary high-water mark to at least to 3 feet (915 mm) below the finished grade or existing ground surface elevation, whichever is lower or according to plans. Shape and contour disturbed areas to blend with the surrounding terrain or as shown on plans.~~

FINAL ACCEPTANCE

202.03.1 Removal of Bridges and Major Drainage Structures

- ~~C. **Removal of Substructures.** Remove or cut off piles and substructures to 3 feet (915 mm) below the finished grade or existing ground surface elevation, whichever is lower. Shape and contour the removal areas to blend with the surrounding terrain.~~
- ~~B. Do not damage new work while removing existing structures. **Removal of Substructures.** Remove existing substructures and foundations located within the ordinary high-water mark to at least 3 feet (915 mm) below the existing thalweg (lowest channel bottom elevation) of the stream, or completely. Remove existing substructures and foundations located outside the ordinary high-water mark to at least to 3 feet (915 mm) below the finished grade or existing ground surface elevation, whichever is lower or according to plans. Shape and contour disturbed areas to blend with the surrounding terrain or as shown on plans.~~

5. Meet the requirements in subsection 202.03.1.

~~5. Remove existing piers/footings or other substructure located within the ordinary high-water mark to at least 3 feet (915 mm) below the existing thalweg (lowest channel bottom elevation) of the stream, or completely. Remove existing piers/footings or other substructure located outside the ordinary high-water mark to at least to 3 feet (915 mm)~~

~~below the finished grade or existing ground surface elevation, whichever is lower or according to plans. Shape and contour disturbed areas to blend with the surrounding terrain or as shown on plans.~~

REASON: The two specs covered the same item and were slightly different. Subsection 202.03.1 will be updated to match what is the current text in Subsection 208.03.3 G5 and Subsection 208.03.3 G5 will then be deleted.

COMMENTS: This is a requirement of the SPA, there should be some mean to alert the contractor that busting the spec is not JUST busting a spec that MDT may call them on. It could also mean busting an SPA 124 permit condition which could result in violations or fines. If the contractor is not aware of the potential for a compliance issue, then MDT cannot expect them to be the PRP for the violation and pay fines, etc. How will the contractor be alerted to the potential compliance issue?

Piers and footings are specific foundation types. Suggest revising this sentence to include both substructure and foundations.

PROPOSED DRAFT

210.03.8 Non-Glare Lighting (Ballon Type Lighting)

Illuminate all work areas at night with indirect (i.e. balloon type) lights capable of producing a minimum 10 foot-candles of non-glare lighting. At the request of the Project Manager, use a luminance meter with a minimum accuracy of 5%, capable of measuring with a minimum resolution of 0.1 lux to take a luminance measurement at the working surface.

Equip, at a minimum, the following pieces of equipment with non-glare lighting:

1. Milling and grinding equipment.
2. Mechanical sweepers.
3. Material transfer equipment.
4. Spreading and finishing equipment.
5. Rollers, excavators, and loaders.
6. Core/density testing vehicles.
7. Pumping equipment.
8. Bid-wells.
9. Striping equipment.

This requirement does not include trucks and vehicles used to transport materials and personnel that are continuously moving in and out of the work zone.

Do not operate headlights of construction equipment when facing oncoming traffic within the work zone.

Do not use equipment mounted work lighting other than non-glare lighting.

618.03.14 Flagging Operations

A. Illuminated Flagging Stations. ~~Use portable light plant(s) or~~ Furnish portable balloon light(s) to illuminate flagging stations ~~with a minimum luminance level of 10 foot-candles meeting the requirements of Subsection 210.03.8.~~ Locate the illumination source so as not to create a hazard to the travelling public and to minimize glare to oncoming drivers. Shield light as necessary to prevent overflow onto adjacent properties. ~~When requested by the Project Manager, use a luminance meter with a minimum accuracy of 5%, capable of measuring with a minimum resolution of 0.1 lux to take a luminance measurement at the flagging station. Take the measurement on a horizontal plane 3 feet (915 mm) above the roadway surface.~~

REASON: Spec Update. Currently a Standard Special Provision

COMMENTS Want other options than balloon lights. Do not like the requirement to have to test with a luminance meter. Prefer the Department is responsible for testing. Striping equipment striping long lines should not be required to have non-glare lighting. Suggest changing the line " Do not operate headlights of construction equipment when facing oncoming traffic within the work zone.

FINAL ACCEPTANCE

210.03.8 Non-Glare Lighting (Ballon Type Lighting)

Illuminate all work areas at night with indirect (i.e. balloon type) lights capable of producing a minimum 10 foot-candles of non-glare lighting.

Equip, at a minimum, the following pieces of equipment with non-glare lighting:

1. Milling and grinding equipment.
2. Mechanical sweepers.
3. Material transfer equipment.
4. Spreading and finishing equipment.
5. Rollers, excavators, and loaders.
6. Core/density testing vehicles.
7. Pumping equipment.
8. Bid-wells.
9. Stationary Striping equipment.

This requirement does not include trucks and vehicles used to transport materials and personnel that are continuously moving in and out of the work zone.

Do not operate headlights of stationary construction equipment when facing oncoming traffic within the work zone.

Do not use equipment mounted work lighting other than non-glare lighting.

618.03.14 Flagging Operations

B. Illuminated Flagging Stations. ~~Use portable light plant(s) or~~ Furnish portable balloon light(s) to illuminate flagging stations ~~with a minimum luminance level of 10 foot-candles meeting the requirements of Subsection 210.03.8.~~ Locate the illumination source so as not to create a hazard to the travelling public and to minimize glare to oncoming drivers. Shield light as necessary to prevent overflow onto adjacent properties. ~~When requested by the Project Manager, use a luminance meter with a minimum accuracy of 5%, capable of measuring with a minimum resolution of 0.1 lux to take a luminance measurement at the flagging station. Take the measurement on a horizontal plane 3 feet (915 mm) above the roadway surface.~~

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

212.04 METHOD OF MEASUREMENT

Obliterate roadway is measured in stations ~~to the nearest whole station~~ along the centerline of the roadway obliterated.

REASON: This conflicts with Table 109-1 Rounding Criteria. Station is rounded to 0.01.

COMMENTS:

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

301.03.5 Aggregate Surfacing Construction

F. Curing. Allow the final lift of crushed aggregate course to cure. ~~for~~ The aggregate must meet both requirements:

- Cure for a minimum of 72 hours, and
- Until the in-place moisture content is 2% or more below optimum moisture content or a maximum of 5% final moisture content, whichever is lower.

REASON: Clarification

COMMENTS: Do not like having to meet both requirements especially during late season paving.

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

302.04.2 Pavement Pulverization

Pavement pulverization is measured by the square yard (m²) based on the bottom width of the pulverized material. The contract unit price may be adjusted if the Project Manager issues a written order for the following:

1. The average pavement depth varies by more than 0.10-foot (30 mm) from plan; or
2. ~~and the Project Manager issues a written order to~~ Increase or decrease to the pulverization depth.

REASON: Allow for a price adjustment if the pavement depth doesn't match the plans.

COMMENTS:

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

401.03 Construction Requirements

A. Pre-Pave Meeting. Schedule a pre-paving meeting to be held at least 72 hours before paving starts.

The minimum required attendees are the superintendent, foreman, other contractor personnel that will supervise the paving operations, traffic control foreman, and key Department inspection personnel. The purpose of the meeting is to review specification requirements, lines of communication, discuss paving plan, quality control, aquatic resources, traffic control, safety, and sampling.

REASON: Require a meeting between parties to go over paving operations just prior to paving operations.

COMMENTS:

NO CHANGES TO THE PROPOSED DRAFT

FINAL ACCEPTANCE

401.02.5 Binder Replacement*

A. Incentive. Plant mix surfacing is eligible for a binder replacement incentive. The incentive will be based on the asphalt binder savings realized by the incorporation of recycled materials into the plant mix. The cost of the total binder saved, based on total % binder in the mix and %virgin binder used, will be calculated for incentive. Half of the total savings will be paid to the Contractor as incentive as described below. Certify the cost of the specified asphalt binder (FOB at the refinery) by submitting form MDT-CON-401 1 and copies of the binder invoices. Submit this information to the Project Manager before paving is complete. If the certified price varies by more than 20% of the bid price or if this information is not submitted in the specified timeframe, no incentive will be paid.

Furnish a mix design meeting all the requirements of Section 401 with the inclusion of recycled materials. Include extracted gradations and percent binder of the RAP and/or RAS in the mix design. Base this information on samples taken of the materials to be used on the project. The mix design must also include the percent of binder, by total weight of mix, to be replaced with recycled binder.

Include the costs associated with all work to incorporate recycled materials into the plant mix in the plant mix surfacing bid item. The plant mix and asphalt binder will be measured and paid for in accordance with the contract. Separate incentives will be calculated for each type of plant mix that incorporates recycled materials.

At the completion of all plant mix work, the incentive paid to the contractor will be calculated per the following:

$$\text{Incentive} = (0.5)(AC\%_{\text{Total}} - AC\%_{\text{Virgin}})(T_{\text{Total}})(CP_{\text{AC}})$$

Where:

- AC%_{Total} is the average AC percentage calculated during production of the plant mix item (expressed as a decimal rounded to the nearest thousandth).
- AC%_{Virgin} is the total virgin AC used (tons) to produce the plant mix item divided by T_{Total} (expressed as a decimal rounded to the nearest thousandth).
- T_{Total} is total tons of plant mix placed and accepted by the Department.
- CP_{AC} is the certified invoice price for the asphalt binder as described in part A)1) above or the asphalt binder bid unit price, whichever is less.

No incentive will be paid on Commercial Plant Mix.

REASON: Currently a Standard Special Provision.

COMMENTS

This is the Plant Mix Surfacing Materials section. Is that the appropriate place for this? Would 401.05 Basis of Payment be more appropriate.

*Moved to Subsection 401.05.1

NO CHANGES TO THE PROPOSED DRAFT

FINAL ACCEPTANCE

401.03.21 Compaction, Compaction Control Testing, and Density Acceptance Testing

Complete compaction rolling within the temperature range recommended by the asphalt cement manufacturer included in the mix design or before the mat temperature falls below 175°F (80 °C). Compaction rolling after the temperature is below 175 °F (80 °C) is cause to suspend paving operations. Compaction rolling is rolling in the vibratory mode. The Project Manager may adjust the minimum 175 °F (80 °C) temperature if compaction rolling damages the new pavement or the contractor has received written approval from the asphalt cement manufacturer.

Compact Warm Mixes in accordance with Subsection [401.02.4](#).

Perform all necessary density testing to control compaction.

~~Once the plant mix is spread, struck off, and surface irregularities are corrected, compact the plant mix to at least 93.0% of target maximum specific gravity as determined in accordance with MT 328 with the following exceptions:~~

- ~~• 92.0% ¾-inch (9.5 mm) mixes with plan depths of less than 0.12 foot (36 mm).~~
- ~~• 92.0% any mix placed directly on a crushed aggregate surfacing.~~

~~Compact plant mix placed directly on CTB to 93.0% for the full width of the typical section including crushed aggregate shoulders.~~

Compact plant mix with mechanical tampers, vibrating plates, or other means along curbs, abutments, retaining structures, up to and beneath the face of guardrail and posts, and other areas which are not accessible to compaction with rollers.

Density acceptance by cores does not apply to leveling or isolation lifts that have a depth of less than 0.10-foot (30 mm) thick.

~~Provide core samples of the compacted plant mix from the roadway. Core locations will be randomly selected based on the tons (MT) of mix placed. Core the locations selected after all rolling is complete and before the roadway is opened to traffic. The center of the core location will not be within 12 inches (305 mm) of unconfined longitudinal paving joints, 12 inches (305 mm) of a shoulder hinge point, or where the planned nominal thickness is less than 0.10 foot (30 mm). The center of the core locations for vertically confined longitudinal joints may be placed within 5 inches (125 mm) of the joint.~~ The pavement density is determined from cores taken at randomly selected locations after all rolling is complete and before the roadway is open to traffic. Density acceptance by cores does not apply to leveling or isolation lifts that have a depth of less than 0.10 foot (30 mm) thick.

Provide two 4-inch (100 mm) cores the full depth of the plant mix surfacing, extracted from within a 5-inch (125 mm) radius of each designated location. Mark the core as directed.

Separate the plant mix lift to be tested from the total core. Cut the core to the actual lift thickness within ± 0.15-inch (4 mm). The Department recommends using a saw to separate the lift to be tested from the total core. Perform this work within the project limits or other approved location.

The Inspector will witness all the above activities before traffic is permitted to use the plant mix lift being tested.

Furnish the core immediately to the Inspector after it is removed, marked, and separated. Do not remove the cores from the Inspector's visual control at any time.

~~Re-core as directed any time either the Contractor requirements or procedures within this section are not met. The test results of the replacement core to be used in the QA evaluation for the lot represented will be the actual relative in place density unless it exceeds:~~

- ~~• 92%; then 92% will be used for the relative in place density of that core in the QA evaluation.~~
- ~~• 91% for 3/8-inch (9.5mm) mixes with plan depths of less than 0.12 foot (36 mm); then 91% will be used for the relative in place density of that core in the QA evaluation.~~
- ~~• 91% for any mix placed directly on a crushed aggregate surfacing; and then 91% will be used for the relative in place density of that core in the QA evaluation.~~

~~The plant mix in the sub lot represented is considered to be not meeting density specifications.~~

Remove free water from each core hole. pPlace and compact new hot plant mix, not exceeding 2-inch (50 mm) lifts, to the finished surface immediately after the core is removed. If approved by the Project Manager, fill with a commercially manufactured quick setting non-shrink grout to the finished surface. Apply a double shot of emulsified asphalt over the core holes when the patch material has set. Mark each core as directed by the Inspector witnessing the coring.

All costs of furnishing the cores will be considered incidental to the plant mix surfacing item and no separate measurement or payment will be made.

Plant mix surfacing is evaluated for density on a lot-by-lot basis in accordance with Subsection 105.03.2.

A. Target Density for Compaction.

1. **Density Evaluation.** MT 328 is used to establish the target Rice gravity (maximum specific gravity). The bulk specific gravity (AASHTOM T 314 166) determined for each core will be divided by the target Rice gravity sp in effect at the time the plant mix was produced to determine the relative in-place density. The average of the results of the pair of cores from each location will be expressed as the percent of relative density. All results will be reported to the tenth of one percent (0.1%).

Once the plant mix is spread, struck off, and surface irregularities are corrected, compact the plant mix to at least 93.0% of target maximum specific gravity as determined in accordance with MT 328 with the following exceptions:

- 92.0% - 3/8-inch (9.5 mm) mixes with plan depths of less than 0.12-foot (36 mm).
- 92.0% - any mix placed directly on a crushed aggregate surfacing.

Compact plant mix placed directly on CTB to 93.0% of target maximum specific gravity for the full width of the typical section including crushed aggregate shoulders.

Provide core samples of the compacted plant mix from the roadway. Core locations will be randomly selected based on the tons (MT) of mix placed. Core the locations selected after all rolling is complete and before the roadway is opened to

traffic. The center of the core location will not be within 12 inches (305 mm) of unconfined longitudinal paving joints, 12 inches (305 mm) of a shoulder hinge point, or where the planned nominal thickness is less than 0.10-foot (30 mm). The center of the core locations for vertically confined longitudinal joints may be placed within 5 inches (125 mm) of the joint.

Re-core as directed any time either the contract requirements or procedures within this section are not met. The test results of the replacement core to be used in the QA evaluation for the lot represented will be the actual relative in-place density unless it exceeds:

- 92%; then 92% will be used for the relative in-place density of that core in the QA evaluation.
- 91% for $\frac{3}{8}$ -inch (9.5mm) mixes with plan depths of less than 0.12 foot (36 mm); then 91% will be used for the relative in-place density of that core in the QA evaluation.
- 91% for any mix placed directly on a crushed aggregate surfacing; and then 91% will be used for the relative in-place density of that core in the QA evaluation.

The plant mix in the sub lot represented is considered to be not meeting density specifications.

- 2. Lot Size.** The approximate mix quantity represented by each sub-lot is 600 tons (600 MT). Additional locations and tests may be required. The quantity represented by 5 tests or approximately 3,000 tons (3,000 MT) of mix constitutes a lot whenever production schedules and material continuity permit. A lot represented by 3 to 7 consecutive random sub-lots will be established when there are short production runs, significant material changes, or other unusual characteristics of the work.

B. Target Density for Longitudinal Joint Compaction. sConstruct all longitudinal joints of new plant mix with either a notched wedge joint or taper the joint edges at a 4H:1V to 6H:1V slope. Confined joints created when paving against a vertically milled surface are excluded from the requirements of this specification.

If using a notched wedge, ensure the notched wedge joint has a vertical edge of at least the maximum aggregate size and no more than $\frac{1}{2}$ of the compacted lift thickness and then taper down on a slope not steeper than 4H:1V. Uniformly compact the sloped portion of the plant mix notched wedge joint.

Use a device attached to the screed for shaping and compaction.

When placing the second pass (hot lane), overlap the paver screed 1.0 ± 0.5 inches (metric) onto the cold plant mix. Do not "bump back" or rake the overlapped material.

Density acceptance by cores for longitudinal joints does not apply to first lifts of plant mix surfacing placed directly over crushed aggregate courses. ~~or lifts with plan depths of less than 0.10-foot (30 mm)~~

- 1. Density Evaluation.** MT 328 is used to establish the target Rice density. The bulk specific gravity G_m (AASHTO T 166) determined for each core will be divided by the target Rice density in effect at the time the hot lane mix was produced to determine the relative in-place density. In the event the rolling Rice density differs by 0.5 lbs/ft³

between the hot and cold lanes, the Rice densities for that location will be averaged. All results will be reported to the tenth of one percent (0.1%).

Compact the joint area to at least 91.0% of target maximum specific gravity as determined in accordance with MT 328 with the following exceptions:

- 90.0% - 3/8-inch (9.5 mm) mixes with plan depths of less than 0.12-foot (36 mm).
- ~~90.0% - 3/8-inch (9.5 mm) mixes with plan depths of less than 0.12-foot (36 mm).~~

The joint area is defined as the tapered area at the overlap of the hot and cold lanes. Furnish the Department with a 4-inch or 6-inch core of the compacted joint for every 4000 feet (metric) of joint constructed, and at least 3 per project, at locations directed by the Project Manager. Center the core within the tapered area to include both the hot lane and cold lane. Mark the core as directed.

Re-core as directed any time either the Contractor requirements or procedures within this section are not met. The test results of the replacement core to be used in the QA evaluation for the lot represented will be the actual relative in-place density unless it exceeds:

- 90%; then 90% will be used for the relative in-place density of that core in the QA evaluation.
- 89% for 3/8-inch (9.5mm) mixes with plan depths of less than 0.12 foot (36 mm); then 89% will be used for the relative in-place density of that core in the QA evaluation.

2. Lot Size. The approximate joint quantity represented by each sub-lot is 4000 feet. Additional locations and tests may be required. The quantity represented by 5 tests or approximately 20,000 feet of longitudinal joint constitutes a lot whenever production schedules and material continuity permit. A lot represented by 3 to 7 consecutive random sub-lots will be established when there are short production runs, significant material changes, or other unusual characteristics of the work.

3. Longitudinal Joint Pay Adjustment. Longitudinal joints are evaluated for density on a lot-by-lot basis in accordance with Subsection 105.03.2. The pay adjustment will be calculated using the equation below. The unit cost will be \$4.50/foot of joint. Length is the length of longitudinal joint in the lot.

$$\text{Pay aAdjustment} = (P/100) \times \text{Length} \times \text{Unit Cost}$$

A 0.05 pay factor will be applied to the lots of longitudinal joint when the average density for the lot (Xn) is from 92.0% to 95.0%, inclusive, of the Maximum Specific Gravity (Rice's Method) and the range (R) is 3 or less.

Longitudinal joint incentive is paid separately and is not included in the plant mix incentive adjustments. Include all costs associated with constructing the joint in the cost of plant mix surfacing.

~~All costs of furnishing the cores will be considered incidental to the plant mix surfacing item and no separate measurement or payment will be made.~~

~~Plant mix surfacing is evaluated for density on a lot by lot basis in accordance with Subsection 105.03.2.~~

REASON: Longitudinal joint compaction is currently a Standard Special Provision.

COMMENTS

NO CHANGES TO THE PROPOSED DRAFT

FINAL ACCEPTANCE

401.03.23 Surface Tolerance for Flexible Pavement

1. Category I projects:

Target IRI values - 45 to 55 inches per mile

- Projects with 2 or more opportunities for improving the ride.
- ~~Single lift overlays~~ Projects with 1 opportunity for improving the ride with a pre-paving IRI value less than 110 in/mi

2. Category II projects:

Target IRI values - 55 to 60 inches per mile

- ~~Single lift overlays~~ Projects with 1 opportunity for improving the ride with a pre-paving IRI greater than or equal to 110 in/mi and less than 190 in/mi

REASON: Ride Categories will be determined based off opportunity for improving the ride.

COMMENTS:

Under this specification MDT identifies what constitutes an opportunity to improve the ride. The way the specification is written it gives equal weight to all these opportunities and assumes each method can improve the ride equally which is not true. You can not expect to get the same level of improvement when performing a CIR or HIR as you can when you are placing virgin materials. In-place recycles only utilize the materials that are in the road and have no or very limited opportunities to correct grade and slope irregularities. The same can be said for cold milling by itself as an opportunity, many times we are unable to effectively correct grade and or slope issues because the inspectors hammer on the Operator to achieve the plan specified depths regardless of trying to correct defects. Is it possible to identify these lesser quality of improvement methods and create a separate category. The Contractor should not have to be penalized for a specific construction method that MDT has chosen to utilize.

PROPOSED DRAFT

409.03.6 Pre-Seal Coat Meeting

Schedule a pre-seal coat meeting to be held at least 24 hours before seal coat operations begin.

The minimum required attendees are the superintendent, foreman, other contractor personnel that will supervise the seal coat operations, broom operators, traffic control foreman, and key Department inspection personnel. The purpose of the meeting is to review the specification requirements, lines of communication, aquatic resources, traffic control, seal coat plan, safety, and sampling.

REASON: Require a meeting between parties to go over seal coat operations just prior beginning seal coat operations.

COMMENTS

It will be impossible for the Contractor to adhere to the timeframe specified. The chip seal season is short and these crews are constantly moving throughout the season. It is not uncommon to complete one chip seal and start another in the same day. I doubt there is a single crew that would be able to have the Superintendent/Foreman and broom operators available to attend a meeting at least 24 hours prior to beginning operations. This would require the contractor to hold this meeting for all projects before the season began, which in my opinion, would defeat the purpose of the meeting. This was a discussion at previous Environmental Task Force meetings and intended to mitigate some of the past issues MDT has seen on these types of projects. The only way to implement this and I believe the intent when it was originally discussed, was to hold this meeting onsite prior to beginning chip sealing, i.e. when the crew mobilizes to the project hold the meeting then begin work.

FINAL ACCEPTANCE

409.03.6 Pre-Seal Coat Meeting

Schedule a pre-seal coat meeting to be held on site prior to starting seal coat operations.

The minimum required attendees are the superintendent, foreman, other contractor personnel that will supervise the seal coat operations, broom operators, traffic control foreman, and key Department inspection personnel. The purpose of the meeting is to review the specification requirements, lines of communication, aquatic resources, traffic control, seal coat plan, safety, and sampling.

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

410.03.9 Protection of Traffic and Highway Structures

A. Structure Protection. Cover exposed bridge elements including expansion joints, culverts, curbs, gutters, guard fences, road signs, manhole lids, water valve box covers, and other roadside structures to protect them from splash or spray when applying bituminous material.

Clean these same items of all bituminous material, cover aggregate, dirt, or other material caused by the Contractor's operations.

Repair all Contractor caused damage to the highway or structures at Contractor expense.

REASON: Clarification

COMMENTS

PROPOSED DRAFT

411.03.4 Salvage of Pavement Millings

~~Salvage, haul, and stockpile the milled pavement to the specified site.~~

Milled pavement is the Contractor's property ~~when specified~~ and must be removed from the project. When required by the contract sSalvage, haul, and stockpile the milled pavement to the specified site.

411.05 Basis of Payment

Hauling, windrowing, transferring, or stockpiling cold milled material will not be measured for payment Include all costs for the disposal of cold millings in the unit bid price for Cold Milling.

REASON: A Special Provision will no longer be needed when the millings become property of the Contractor. A modified special provision will still be used when the millings become property of someone other than the Contractor.

COMMENTS

This requires the contractor to remove millings from the project. Does that in effect prevent them from using them as traffic gravel or shoulder gravel on projects?

FINAL ACCEPTANCE

411.03.4 Salvage of Pavement Millings

~~Salvage, haul, and stockpile the milled pavement to the specified site.~~

Milled pavement is the Contractor's property ~~when specified~~ and must be removed from the project unless used for traffic gravel and/or shoulder gravel. When required by the contract sSalvage, haul, and stockpile the milled pavement to the specified site.

411.05 Basis of Payment

Hauling, windrowing, transferring, or stockpiling cold milled material will not be measured for payment Include all costs for the disposal of cold millings in the unit bid price for Cold Milling.

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

TABLE 551-2

CONCRETE REQUIREMENTS

Notes:

1. The strength for transfer of pre-stress and the 28-day strength requirement vary with beam length and design. Check plans and specifications for each project.
2. The ~~designed-field~~ target value for slump may be changed, within requirements, when necessary to facilitate proper placement.

REASON: Clarification

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

553.03.1 Fabrication

Fabricate all prestressed concrete members using a manufacturing plant currently certified by the Prestressed Concrete Institute ~~or the National Precast Concrete Association~~ in the category applicable to the member being fabricated. The Department will make an exemption for new manufacturing plants that are of the same ownership as an existing certified plant, provided the new manufacturing plant operates under the same quality assurance and control programs as the certified plants, modified to address any production differences, and all fabrication is performed under the direct supervision of a quality assurance and control manager provided by an existing pre-qualified plant. Direct supervision means that the quality assurance and control manager is on site during all fabrication performed in the new fabrication plant and is responsible for the quality assurance and control activities.

REASON: The National Precast Concrete Association no longer offers any certification for prestressed concrete fabrication

COMMENTS:

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

553.03.15 Workmanship and Tolerances

TABLE 553-1
TOLERANCES FOR PRESTRESSED CONCRETE MEMBERS

Element	Tolerance
Depth overall	+ 1/2 to -1/4-inch (13 to 5 mm)
Width of flanges, fillets, and web	+ 3/8 to -1/4-inch (10 to 5 mm)

REASON: The table is missing a –(negative) sign for the tolerance on Depth overall and Width of flanges, fillets, and web.

COMMENTS:

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

605.03.13 Linear Delineation Systems

Install linear delineation systems in accordance with Subsection 619.03.14 ~~panels per section of concrete barrier rail. Equally space the panels on the barrier rail. Prepare the concrete barrier to ensure proper fastening prior to installation. Install linear delineation in accordance with the manufacturer installation procedures and requirements.~~

~~Mount maximum distance of 2 inches from the top edge of the standard concrete median barrier. Mount the panels at the same height above the roadway on both standard and tall barrier rail.~~

619.03.14 Linear Delineation Systems

Install 2 panels per section of concrete barrier rail. Equally space the panels on the barrier rail. Prepare the concrete barrier to ensure proper fastening prior to installation. Install linear delineation in accordance with the manufacturer installation procedures and requirements.

Mount maximum distance of 2 inches from the top edge of the standard concrete median barrier. Mount the panels at the same height above the roadway on both standard and tall barrier rail.

619.04.13 Linear Delineation Systems

Linear delineation is measured per each panel installed and accepted.

619.05 BASIS OF PAYMENT

Payment for the completed and accepted work is made under the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Aluminum and Plywood Signs	Square Foot (m ²)
Breakaway System	Each
<u>Delineation – Linear Barrier</u>	<u>Each</u>
Delineator (Type and Design)	Each
Metal Sign Post	Pound (kg)
Permanent Barricade	Foot (m)
Remove Signs	Each
Reset Signs	Each
Sheet Aluminum Overlay	Square Foot (m ²)
Timber Sign Post	Foot (m)

REASON: Make easier to find in the spec book and match subsection with bid item number.

COMMENTS

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

618.03.5 Traffic Control General Requirements

Meet all traffic control plan requirements before starting work affecting the roadway. Furnish and maintain traffic control devices that meet the “acceptable” category described in Quality Guidelines for Temporary Traffic Control Devices and Features published by ATSSA. Repair or remove and replace “marginal” devices ~~with~~within 24 hours; and repair or remove and replace “unacceptable” devices immediately. Anything in the worse-than-marginal conditions is not acceptable. Do not deliver devices in the “unacceptable” category to the jobsite.

REASON:

COMMENTS

PROPOSED DRAFT

618.03.16 ~~Water for~~ Dust Control

~~Use~~Furnish water, liquid magnesium chloride, liquid calcium chloride or other dust palliative approved by the Project Manager. Furnish, haul, and apply dust control ~~of water~~ using tank trucks equipped with spray systems that uniformly distributes the ~~water dust control~~ over the application area. ~~Control dust for the protection and safety of traffic, for abatement of air pollution, or for other purposes, apply enough to eliminate the dust. Discontinue watering as directed. Control dust 24 hours a day, 7 days a week.~~

~~The Project Manager may apply deducts as shown below due to dust control not meeting the requirements of the contract.~~

- ~~• 10% of the daily traffic control units; or \$2500 whichever is higher.~~
- ~~• \$2500 per day for lump sum contracts.~~

~~Dust control is not measured for payment.~~

REASON: Dust control is not being addressed in a timely manner.

COMMENTS:

The deduct amount is excessive, there are no sideboards on the spec.

FINAL ACCEPTANCE

104.05.1 General

Perform maintenance work on completed and uncompleted parts of the project until approval in accordance with Subsection [105.17.2](#).

Maintenance includes, but is not limited to the following:

- ~~1.~~ **1.** ~~Controlling dust 24 hours a day, 7 days a week in accordance with Subsection 618.03.16.~~

618.03.16 ~~Water for~~ Dust Control

~~Use~~Furnish water, liquid magnesium chloride, liquid calcium chloride or other dust palliative approved by the Project Manager. Furnish, haul, and apply dust control ~~of water~~ using tank trucks equipped with spray systems that uniformly distributes the ~~water dust control~~ over the application area. ~~Control dust for the protection and safety of traffic, for abatement of air pollution, or for other purposes, apply enough to eliminate the dust. Discontinue watering as directed. Control dust with a method that does not adversely affect the constructed roadway elements. Meet the requirements of subsection 104.05.~~

~~The Project Manager may apply deducts as shown below due to dust control not meeting the requirements of the contract.~~

- ~~• 10% of the daily traffic control units; or \$2500 whichever is higher.~~
- ~~• \$2500 per day for lump sum contracts.~~

~~Dust control is not measured for payment.~~

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

619.02 MATERIALS

Furnish materials in accordance with the [Detailed Drawings](#) and the following subsection requirements:

Delineators	Detailed Drawings
Delineator Panel.....	Detailed Drawings
Flexible Delineators	704.03
Signing Material.....	704.01

619.02.1 Delineator Panel

~~Furnish U-channel post materials in accordance with the Detailed Drawings. Furnish 3-inch x 36-inch (75 mm x 915 mm) Type IV sheet aluminum retroreflective delineation panels. Furnish panels matching the colors and orientation of the reflectors based on the corresponding design usage. Use bolts, nuts, washers, and other mounting hardware in accordance with the Detailed Drawings and Section [704](#).~~

REASON: This information is now listed in Detail Drawing 619-??. The Detail Drawings already had a subsection on Delineators and is a better fit for this information.

COMMENTS:

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

620.03.5 Temporary Striping

- C. ~~Tab~~**Raised Pavement Markers**. Follow the tab manufacturer's recommendations for road surface preparation and installation. When substituted for line markings, install raised pavement markers in accordance with the following:
1. At a spacing no greater than 10 feet (3m) for solid line markings.
 2. 3 markers evenly spaced for each skip line.

REASON: To meet the requirements of the MUTCD.

COMMENTS:

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

623.02 MATERIALS

Use metal mailboxes listed on the [QPL](#) for Mailbox, ~~and~~ Mailbox - Large, and Mailbox-Extra Large. The mailbox carrier service door must be embossed with the following two statements: "U.S. MAIL" in a minimum of ½-inch (13 mm) high letters and "Approved by The Postmaster General" in a minimum of ⅜-inch (4.8 mm) high letters.

623.05 BASIS OF PAYMENT

Payment for the completed and accepted quantities is made under the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Mailbox	Each
Mailbox-Large	Each
<u>Mailbox-Extra Large</u>	<u>Each</u>

Payment at the contract unit price is full compensation for all resources necessary to complete the item of work in accordance with the contract.

REASON: Spec update.

COMMENTS:

701.06 RIPRAP

Furnish ~~stone that is~~ hard, durable, ~~and angular in shape,~~ stone that is resistant to weathering and water action, ~~and free from overburden, spoil, shale, structural defects, and of organic or other unsuitable material.~~

Each Angular stone must have its greatest dimension not greater than 3 times its least dimension is characterized by sharp, clean edges at the intersections of relatively flat surfaces. Furnish stone that is environmentally safe.

Do not use rounded stone or boulders from a streambed source as riprap. Do not use shale ~~or~~ stone with shale seams, or other fissile or fissured stone that may break into smaller pieces in the process of handling and placing.

~~The stone will be accepted based on visual analysis, the Department's riprap evaluation form, and optical granulometry software to determine gradation. Prior to covering or revegetating the riprap notify the Project Manager. Material placed in its final location not meeting the riprap gradation listed in Table 701-21 is unacceptable.~~

The stone must meet the requirements of Table 701-21A.

TABLE 701-21A
RIPRAP REQUIREMENTS

<u>Riprap (Class I, II, and III)</u>	
<u>Specific gravity (AASHTO T 85)</u>	<u>2.40 min.</u>
<u>Absorption (AASHTO T 85)</u>	<u>4.0% max</u>
<u>Los Angeles abrasion (ASTM C535)</u>	<u>50% max</u>
<u>Gradation (Optical Granulometry)</u>	<u>Table 701-21</u>
<u>Soundness of aggregate using sodium sulfate (AASHTO T 104)</u>	<u>12% loss max</u>
<u>The longest dimension (length) of each stone is no longer than 3 times the shortest dimension (width) of the stone</u>	

Obtain riprap from sources in accordance with Section 106 requirements to produce material in accordance with Subsection 701.06. Each material source proposed for use as riprap is subject to approval prior to placement. If the riprap source is approved, it may be limited to certain areas, layers, or locations within the source. Approval of the source does not preclude the Department from retesting the material once it is delivered to the project.

Ensure the riprap's placement is uniformly distributed. Acceptance for gradation will be determined by visual analysis and use of optical granulometry software and will be verified in the riprap's final placement location. Prior to final placement the Contractor may request a maximum of 3 courtesy tests of the riprap gradation.

Once in place, and prior to covering or revegetating the riprap, notify the Project Manager for in-place gradation testing.

TABLE 701-21
TABLE OF GRADATIONS – RANDOM RIPRAP

Class	Weight Of Stone	Equivalent Spherical Diameter[†]	% Of Total Weight That Must Be Smaller Than Given Size
I	100 pounds (45 kg)	1.05 feet (320 mm)	100
	60 pounds (27 kg)	0.88 feet (270 mm)	70-90
	25 pounds (11 kg)	0.66 feet (200 mm)	40-60
	2 pounds (0.90 kg)	0.27 feet (80 mm)	0-10
II	700 pounds (318 kg)	2.00 feet (610 mm)	100
	500 pounds (227 kg)	1.79 feet (545 mm)	70-90
	200 pounds (91 kg)	1.32 feet (400 mm)	40-60
	20 pounds (9.0 kg)	0.61 feet (190 mm)	0-10
III	2,000 pounds (99 kg)	2.82 feet (860 mm)	100
	1,400 pounds (35 kg)	2.53 feet (770 mm)	70-90
	700 pounds (318 kg)	2.00 feet (610 mm)	40-60
	40 pounds (18 kg)	0.77 feet (235 mm)	0-10

Note 1. —Based on unit weight of 165 pounds per cubic foot (2,675 kg/m³).

TABLE 701-21
TABLE OF GRADATIONS - RANDOM RIPRAP

<u>CLASS</u>	<u>Mean Particle Size</u>	<u>% of Mean Particle Size Passing</u>
<u>I</u>	<u>13 inches</u>	<u>100</u>
	<u>11 inches</u>	<u>70-90</u>
	<u>8 inches</u>	<u>40-60</u>
	<u>3 inches</u>	<u>0-10</u>
<u>II</u>	<u>24 inches</u>	<u>100</u>
	<u>21 inches</u>	<u>70-90</u>
	<u>16 inches</u>	<u>40-60</u>
	<u>7 inches</u>	<u>0-10</u>
<u>III</u>	<u>36 inches</u>	<u>100</u>
	<u>30 inches</u>	<u>70-90</u>
	<u>24 inches</u>	<u>40-60</u>
	<u>9 inches</u>	<u>0-10</u>

Notes: Mean Particle Size is the average of the dimensions for the length, width, and depth of each stone.

REASON: Spec update (Currently a Standard Special Provision)

COMMENTS:

NO CHANGES TO THE PROPOSED DRAFT FINAL ACCEPTANCE

703.11 LUMINAIRES

Furnish and install luminaires and lamps meeting ~~these specifications and~~ the contract requirements.

~~Wire all luminaires for 240-volt operation.~~

~~Furnish and install clear high pressure sodium vapor lamps having a 24,000 hour rated life. Meet the following wattage and initial lumens requirements:~~

~~1. 200 Watt: 22,000 initial lumens.~~

~~2. 250 Watt: 27,500 initial lumens.~~

~~3. 400 Watt: 50,000 initial lumens.~~

~~Ballasts and luminaire must be integral, with the ballast providing -20 °F (-29 °C) starting capacity. Multiple ballasts must be 240 volt regulated lag type, 0.90 power factor, with an operating range of ± 10%. Starting and open circuit volt amperes must not exceed operating values.~~

~~Furnish the unit with an independent, replaceable starting board.~~

~~The luminaire assemblies must be slip-fitter type, end mounted on a 2-inch (50 mm) pipe tenon.~~

~~Furnish ANSI/IES full cutoff (flat lens), medium, type III distribution luminaires~~

REASON: The spec is outdated and currently addressed by Project Specific Special Provisions.

COMMENTS:

NO CHANGES TO THE PROPOSED DRAFT

FINAL ACCEPTANCE

204.02 MATERIAL

Provide a minimum of 35% of the material retained on the No. 4 (4.75 mm) sieve with at least one ~~mechanically~~ fractured face.

301.03.1 Sampling, Testing, and Acceptance

~~Mechanical~~ Fracture AASHTO T 335

409.03.1 Sampling, Testing, and Acceptance

AASHTO T 335 ~~Mechanical~~ Fracture

Surfacing aggregates are evaluated for gradation and ~~mechanical~~ fracture, on a lot-by-lot basis. The upper and lower limits in the gradation table, Table [701-12](#) are the upper and lower limits in the evaluation formulas. The specified minimum fracture values are the lower limit. Acceptance is made in accordance with Subsection [105.03.2](#).

701.02.4 Crushed Base Course Type “A”

5. At least 35% by weight of the aggregate retained on the No. 4 (4.75 mm) sieve has at least one ~~mechanically~~ fractured face.

701.02.5 Crushed Base Course Type “B”

6. At least 20% by weight of the aggregate retained on the No. 4 (4.75 mm) sieve must have one ~~mechanically~~ fractured face.

701.02.6 Crushed Top Surfacing Type “A”

At least 35% by weight of the aggregate retained on the No. 4 (4.75 mm) sieve must have at least one ~~mechanically~~ fractured face.

701.13 BRIDGE END BACKFILL

Note 1. Provide a minimum of 35% of the material retained on the No. 4 (4.75 mm) sieve having at least 1 ~~mechanically~~ fractured face.

REASON: As per AASHTO T 335, Fractured face-an angular, rough, or broken surface of an aggregate particle created by crushing, or by other means.

A face is considered “fractured face” whenever one half or more of the projected area, when viewed normal to that face, is fractured with sharp, well-defined edges (this excludes small nicks).

COMMENTS:

NO CHANGES TO THE PROPOSED DRAFT

FINAL ACCEPTANCE

558.03.7 Permanent Casing

4. Provide corrosion protection for all permanent casing. Galvanize the permanent casing to AASHTO M 111 and ASTM A653 specifications or paint. If painting, meet the following requirements:
 - a. Furnish paint in accordance with Subsection 710.02(B)(3).
 - b. Prepare the casing ~~surface and apply three paint coats in accordance with~~ the paint manufacturer's recommendations ~~for surface preparation, ambient conditions, and application of paint when applying the epoxy 3-coat system.~~
 - c. Apply paint to the casing from the top of exposed steel to the ordinary low water level for casing installed in a water channel and from the top of exposed steel to 1 foot (0.3 m) below ground elevation for casing installed outside of a water channel.
 - d. Apply the first ~~two 2 coats of~~ paint ~~coats~~ to produce a minimum 12 mil (~~0.300 mm~~304.8 μ) dry film thickness. Verify the dry film thickness using SSPC PA-2.
 - e. ~~Apply the finish coat using the same paint or paint-compatible paint, approved by the paint manufacturer,~~ with the first 2 coats. Provide a finish coat with a minimum 3 mil (~~75 μ m~~76.2 μ) dry film thickness. Verify the dry film thickness using SSPC PA-2. Provide the finish coat paint that meets ~~Federal Specification 595B~~SAE-AMS-STD 595, pigment code 36440 (concrete gray). If applied in the shop, provide a copy of the painter's certification that the paint was applied following the manufacturer's recommendations and the paint coat thickness on the casing.
 - f. Repair paint damage caused by transport, handling, welding, and installation following the paint manufacturer's recommendations at no cost to the Department. Provide the Project Manager a copy of the paint manufacturer's recommendations.

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559.03.8 Painting Steel Pile or Steel Pipe Pile

C. Painting. Before driving, apply two coats of paint to the pile starting a minimum of 2 feet (610 mm) below finish ground surface or finish channel bottom to the top of exposed steel.

Apply the first two paint coats to produce a minimum 12 mils (~~0.300 mm~~)304.8 μ) dry film thickness. Field repair paint damage caused by transport, splicing and handling following the paint manufacturer's recommendations before applying the finish coat. Verify the dry film thickness using SSPC PA-2.

When piles are in the final location in the structure, apply the finish coat paint. Provide a finish coat with a minimum 3 mils (~~0.075 mm~~)76.2 μ) dry film thickness on all surfaces exposed to the air at time of paint application. Verify the dry film thickness using SSPC PA-2. The Project Manager will select the finish coat paint color from one of the following:

**TABLE 559-1
FINISH COAT PAINT COLOR**

Color	SAE-AMS-STD 595 <u>Federal Specification 595b</u> Pigment Code
Montana Brown	33578
Montana Blue	35450
Montana Green	34138
Concrete Gray	36440

611.03.4 Painting

Apply one shop coat of primer to all metal parts. Apply ~~a prime coat and a finish coat~~remaining coats in the shop or ~~in the~~ field.

Perform all painting in accordance with Section 612.

Re-paint damaged painted surfaces at Contractor expense.

NO CHANGES TO THE PROPOSED DRAFT

FINAL ACCEPTANCE

612.02 MATERIALS

Furnish material in accordance with Section [710](#). Provide coatings from a single manufacturer ~~if~~. If multiple products or coats are required. ~~Submit and/or allowed submit documentation such as catalogue cuts or product brochures for all claimed product compatibilities. Coat powder coated items from the manufacturer(s) that those products are compatible with a zinc rich prime coat and one another.~~ All structural steel requiring a topcoat of a Triglycidyl Isocyanurate (TGIC) Polyester powder ~~top coat must receive a zinc rich primer coat prior to the application of the topcoat.~~ Use paint materials suitable for the environment in which they will be exposed. Verify all film thicknesses for each coating applied using SSPC PA 2.

Either the contract or the Project Manager will specify the final coat color.

612.02.1 Paint Coating Systems

- A. **New Structural Systems.** Furnish the products necessary for a ~~three~~3-coat system, consisting of inorganic zinc primer, a mid-coat of high build epoxy, and a topcoat of urethane. Do not paint weathering steel unless specifically stated.
- B. **Bridge and Pedestrian Rails.** Furnish a ~~three coat system~~system meeting New Structural Steel Requirements or a TGIC powder coat system.
- C. **Pipe Piling and Casings.** Furnish a two-component self-priming epoxy.
- D. **Cattle Guards.** Furnish a paint system composed of a prime coat and aluminum finish coat or aluminum epoxy paint.
- E. **Existing Structural Steel.** If existing steel is to be painted, the contract requirements will specify whether to fully remove the existing paint, or to apply additional paint over an existing coating.
 - 1. **Full Removal of Existing Paint.** ~~Apply a three coat system~~Furnish a system meeting New Structural Steel Requirements.
 - 2. **Overcoat.** Provide a ~~product~~3-coat system that can be applied over the existing coating without causing the existing paint to ~~debond~~de-bond.
- F. **Miscellaneous Items.** Furnish one of the following: two-component aluminum epoxy paint, two-component self-priming epoxy, zinc phosphate alkyd, leafing aluminum paint, a ~~3 three~~-coat system or TGIC powder coating.

612.03 CONSTRUCTION REQUIREMENTS

Paint all new structural steel surfaces, except those noted in Subsection 612.03.3(C)1. Do not paint weathering steel unless specifically stated. Prevent environmental pollution including streamwater and air pollution caused by paint, paint spray, paint chips, dust, or other harmful materials in accordance with all federal, state, and local regulations and requirements.

612.03.1 Submittals

Submit the following to the Project Manager for review:

- A. **Paint Material Products.** (Paint, Thinners, Caulks, Abrasives, etc.). Submit a written description of the complete coating system, along with the thinners, caulks, abrasives, etc. to be used for the contract to the Project Manager for review at least 30 business days before use.

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Include in the written submittal the manufacturer's product information including but not limited to paint characteristics, surface preparation, film thickness recommendation, safety data, repair procedures and application recommendations.

Bring conflicts between the coating system submittal and the specifications to the Project Manager's attention for resolution.

~~Submittals for paints to be applied over existing paint are to be based on successful test applications to the surface being painted.~~ Submit a proposed sampling and testing plan that will be used to show the proposed overpaint is compatible with the existing paint. Include the number and size of samples to be provided as well as the tests that will be performed to ensure compatibility. Upon approval of the sampling and testing plan, sample the existing paint, test, and provide the test results with certification that the proposed paint system is compatible with the existing paint.

- B. Environmental Pollution Controls.** Submit a work plan that meets OSHA and EPA regulations covering the following sections. Obtain a qualified environmental professional (e.g., industrial hygienist, environmental scientist, etc.) to assist with the workplan development and documentation submittal detailed in item 6 below. The workplan must describe the work procedures to be utilized for removing lead-based paint including procedures to containerize and dispose of removed paint waste and ways to protect the environment and workers.

- 1. Environmental Containment.** Design a containment system in accordance with the Society for Protective Coatings (SSPC) Guide 6, ~~Class 1, 2 or 3~~ Guide for Containing Debris Generated during Paint Removal requirements except that permeable wall materials cannot be used. The containment system may be located on or off the project site.

Submit shop drawings and design calculations for containment systems attached to the structure. Include design calculations that address all load conditions on the structure resulting from the containment system including debris. Specify ventilation and negative pressure equipment capacity, layout, and related calculations. The design of the containment system must be designed and stamped by a professional engineer registered and licensed to conduct engineering in the State of Montana.

- 2. Removal Procedures.** Describe the procedures utilized to remove lead-based paint in locations indicated elsewhere in the contract or as directed.

- 2.3. Worker Protection.** Meet the OSHA lead standards of Title 29, CFR 1926.62 and any state and local regulations required. Describe medical surveillance, exposure monitoring, respiratory protection, personal hygiene, employee training, and employee access to records, hazards communication and a compliance program to reduce lead exposure to within the permissible exposure limits. Exposure monitoring must meet the National Institute of Occupational Safety and Health Method 7028.

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4. Storage and Testing. Store all generated waste which includes but is not limited to spent abrasives, paint scrapings, and wastewater material in properly labeled metal containers approved for hazardous waste transport while waiting test results. Generated waste material must be stored on the project limits. Test waste material for proper waste classification. If tests indicate material is hazardous waste, obtain EPA Hazardous Waste Generator ID Number for MDT. An EPS Hazardous Waste Generator ID Number will be needed for each bridge location.

~~**3.5. Disposal.** Submit a work plan detailing how Dispose of all generated waste which includes but is not limited to spent abrasives, paint scrapings, and wastewater in accordance with applicable regulations, which may include RCRA regulations (40 CFR Parts 266-299) will be collected, stored, and disposed of. Comply with all storage and transportation requirements. Include inspection of storage area to verify no material escaped storage and entered environment wastewater will be collected and disposed of. This includes both hazardous and non-hazardous waste.~~

6. Documentation. Provide documentation regarding waste disposal information, waste manifests, information that demonstrates no lead or other toxic materials were released into the environment from the work area, containment system integrity, storage area and that all work was conducted in accordance with the work plan.

~~**4.7. Staging and Scaffolding.** Submit for approval planned use of an existing structure for attachments of scaffolding or staging, or any equipment on the bridge that weighs 20 tons (18.1 MT) or more.~~

612.03.2 Containment System Requirements by Method of Preparation.

Prevent paint chips and abrasive blasting media from falling into rivers, streams, wetlands, wetland buffers, or other bodies of water. and when specified, from falling onto the ground. Should spills or releases of paint chips occur, clean up immediately and report to Project Manager.

A. Washing. When pressure washing newly installed steel coated only with inorganic zinc primer, the surfaces may be washed without any containment or collection of the water if approved by the Project Manager. Prevent spray and runoff water from entering traveled areas such as roadways, walkways, and railroads, etc.

1. When pressure washing paint containing toxic metals or inorganic zinc/vinyl systems, the containment must meet SSPC Class 2W. All wash water and debris must be collected and disposed in accordance with the applicable regulations. Prevent paint chips from falling onto the ground.

2. When pressure washing all other systems (systems other than inorganic zinc, other than inorganic zinc/vinyl, or systems that contain toxic metals), collect all dislodged paint chips, but the water need not be captured. When dislodged paint chips are collected on suspended containment screens, the maximum mesh opening is 17 mils. When working over ground, chips may be collected from the

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ground in lieu of utilizing containment screens, provided all chips are collected before the end of the shift. Dispose of collected paint chips and debris per applicable regulations.

B. Power Tool and Hand Tool Cleaning. SSPC Level 1 visible emissions criteria apply when any paint is disturbed by dry methods such power tool cleaning.

1. If paint system contains toxic metals, provide containment for open power tool cleaning meeting SSPC Class 2P. Store and dispose of collected paint chips and debris in accordance with the applicable regulations.
2. If paint system does not contain toxic metals, provide containment for open power tool cleaning meeting SSPC Class 3P. Store and dispose of collected paint chips and debris in accordance with the applicable regulations.
3. For roadway joints and other small areas approved by the Project Manager, High Efficiency Particulate Air (HEPA) filter vacuum shrouded power tools may be used in lieu of containment in areas of paint containing toxic or nontoxic metals. Vacuum-shrouded power tools may eliminate the need for containment if it can be demonstrated that all paint chips and debris are collected by the vacuum.

C. Total Paint Removal by Abrasive Blast Cleaning. Prevent paint chips and abrasive blasting media from falling onto the ground. SSPC Level 1 Visible Emissions apply when any paint is disturbed by dry methods such as abrasive blast cleaning.

1. When removing coatings by abrasive blast cleaning (regardless of the presence of toxic metals), meet SSPC Class 2A containment. Dispose of collected paint chips and debris per the applicable regulations. Meet ambient air and worker exposure requirements established by the EPA and OSHA. Maintain containment systems while work is in progress. Do not deviate from the approved working drawings. Deny public access to all rigging, scaffolding, containment systems, and work sites at all times.
2. When cleaning structures over water, provide a skimming boom for emergency backup consisting of a float with a skirt or other approved system is to be employed immediately to collect floating debris. Clean the skimming boom at least once a day. Upon completion of the project, clean the skimming materials or if cleaning is not possible or practical, dispose of as hazardous or nonhazardous waste as applicable.

D. Competent Person. Provide a competent person on site, full time when abrasive blasting or paint containing toxic metals is being disturbed. This person must perform all quality control related functions involving the oversight of worker and environmental protection, containment performance, and waste handling. Provide documentation of qualifications, including experience and records of training. This person must hold a current SSPC C3 Competent Person Certificate or current C5 refresher certificate.

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612.03.23 Surface Preparation

Prepare a test area to define the level of surface preparation needed. This area is to be approved by the Project Manager. If the paint manufacturer recommends a higher degree of surface preparation, use the manufacturer's recommendations.

Hand-clean the steel bridge bearing components containing PTFE, stainless steel and neoprene pads to prevent surface damage. Remove fins, tears, slivers and burred or sharp edges by grinding and re-clean the area as specified before coating. Remove blast residue from steel surfaces with clean brushes, compressed air (free of oils), or commercial grade vacuum equipped with a brush-type cleaning tool, or by double blowing. Guard angles, pier nose angles, deck expansion joints and other small structural steel elements may be prepared for painting using wire brushed, scrapers, chisels as defined by SSPC SP – 2, SSPC SP – 3 or sand blasting SSPC SP -10 as approved. After cleaning, keep steel dry and dust free and prime within 24 hours after cleaning. If the surface becomes contaminated or corrosion redevelops, the surface must be recleaned so it meets specifications prior to the application of the primer coat.

- A. **New Structural Steel.** Brush-off blast cleaning to SSPC SP-7 requirements all new steel that is not to be painted. Solvent wash to SSPC SP-1 requirements, then commercial blast to SSPC SP-6 requirements all new steel that is to be painted except as noted. Solvent wash to SSPC SP-1 requirements, then blast to SSPC SP-10 (near white) all new steel that is to be painted with the three-coat system. The surface profile for all new steel being painted is to be between 1.5 and 3-54.0 mils, or as specified by the paint manufacturer.
- B. **Steel Pipe Piling and Casings.** Solvent wash to SSPC SP-1, then commercial blast to SSPC SP-6 all portions of steel pipe piling and casings that are to be painted.
- C. **Existing Structural Steel (no paint present).** Remove Clean all loose material including soil, concrete and loose rust zone painting/spot repair surfaces in accordance with SSPC-SP2 (hand tool cleaning) or SSPC-SP3 (power tool cleaning) prior after to solvent cleaning per SSPC-SP1. Brush-off blast cleaning to an SSPC-SP7 surfaces that are too large for can be used in lieu of hand and power tool cleaning if approved by the above methods. Clean to SSPC-SP6 requirements. Project Manager. Where the entire structure is to be cleaned, clean in accordance with SSPC-SP-10 near white blast.
- D. **Existing Structural Steel (overcoat existing paint).** Clean areas of loose paint as described in Subsection 612.03.2(C). Roughen, de-gloss, and clean existing paint surface as recommended by the paint manufacturer. (a.).. Feather the edges of old paint permitted to remain. Roughen and de-gloss the surface and remove portions of paint on previously painted surfaces that are chalky, powdered, cracked, or otherwise unacceptable. Remove runs and sags in the existing paint on the outside facing surfaces of fascia beams over highways. Ensure a smooth appearance after application of the new coating.

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- E. Existing Structural Steel (full paint removal).** Clean all surfaces in accordance to SSPC-SP1 and SSPC-~~SP6-SP – 10~~ Near White Blast
- F. Surface Cleanliness and Profile.** Clean and establish a surface profile on the steel as if it were new structural steel.
- ~~**G. Galvanized Surfaces.** Treat galvanized surfaces with phosphoric acid solutions of the zinc phosphate or phosphate chromate types formulated for this use. Dry the treated surface for 20 minutes and rinse with water. Begin painting dry surface within 24 hours.~~
- G. Galvanized Surfaces.** Prepare all surfaces in accordance with the coating manufacturer requirements. Submit a copy of the coating manufacturer recommendations to the Project Manager prior to start of work.
- H. Surface Condition Prior to Painting.** Remove residual dust, dirt, and grease from the surface as the final procedure prior to painting and between coats whenever the coating is contaminated. Cleaning includes the removal of all dust, puddles, grease, oil, exhaust from trucks, debris, concrete spatter, and other foreign matter on the surfaces being painted. Also remove debris on surfaces adjacent to those being painted. Concrete spatter stains that discolor the primer need not be removed provided the material is not dislodged when wiping the surface with a cloth.
Cleaning involves vacuuming, solvent cleaning, hand/power tool cleaning, and pressure washing as appropriate. Should an area of previously cleaned steel become soiled, contaminated, or rusted, reclean the area prior to painting at no additional cost to the Department.
- I. Prior to Application of paint.** The quality control (QC) personnel will inspect the surfaces and verify that they have been prepared according to the Contract. Upon QC acceptance, obtain approval from the Project Manager that the surfaces to be painted during that day have been cleaned as specified.

All hooks, cables, beam clamps, outriggers etc. must be moved during cleaning operations to allow the underlying surfaces to be cleaned according to the contract documents.

612.03.34 Painting

Protect pedestrian, vehicular, and other traffic upon or under the structure, the superstructure and substructure against damage or disfigurement by splatters, splashes, smirches, or over-spray of paint material. Clean all surfaces with paint damage at the contractor's expense.

- A. General.** ~~Unless otherwise approved by the Project Manager, painting season for structural steel, metal posts or poles and bridge rail is from May 1st to October 31st. Apply paint only to dry clean surfaces. Do not paint when weather conditions would cause unsatisfactory results.~~ Allow each coat of paint to dry before applying succeeding coats. Follow the manufacturer's recommendations for ~~drying time unless field conditions require longer drying time~~ recoat times. The Project Manager may stop painting operations at any time if current or impending weather conditions could cause unsatisfactory coating performance.

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Always provide the Project Manager and Quality Assurance Inspectors ready and safe OSHA approved access to ~~workall areas of the structure that require inspection~~. The Project Manager will suspend work for unsafe or inadequate access to work. Ensure all fabrication inspections are complete prior to painting.

Thin paint only as recommended by the manufacturer. Submit as required thinning procedures set forth by the manufacturer in advance for approval by the Project Manager.

- B. Paint Representative.** Furnish the services of a painting technical representative from the paint manufacturer at the beginning of paint application to notify the Project Manager that surface preparation is adequate and to provide technical assistance to the Contractor in application methods that may be unique to the product used. Keep this technical representative on-call as required during operations.

Do not apply paint until surface preparation has been approved by the Project Manager. Do not apply additional or subsequent coats of paint without the Project Manager's approval.

- C. Application.** ~~If using the three coat system, apply three coats of paint to all new steel work. Unless noted otherwise, apply a minimum of two coats of paint for all other paints listed in~~ Apply paint in accordance with Subsection 612.02. ~~Paint in a neat and workmanlike manner. Apply paint in full coats by brush or spray, completely covering all surfaces.~~

Apply paint by brush or spray following the paint manufacturer's recommendations to produce a uniform coat to the metal or previous paint coat. If using brush painting, thoroughly coat surface irregularities and brush out and smooth to produce an even paint film thickness. Use spray pressure tanks with an agitator to thoroughly stir the paint.

If surfaces are inaccessible or have limited access to paint brushes, paint with sprayers or daubers made for that purpose.

Limited Access is defined as a location where the physical characteristics or configuration of the structure restricts the use of a surface preparation or paint application tool at that location. A location is not considered Limited Access if additional time will allow for the proper cleaning or painting of the area, or if commercially available tools are available to clean or paint the area (e.g., angle nozzles, or short nozzles in place of traditional long nozzles for blast cleaning).

Keep ~~materials~~ newly painted ~~under cover in damp or cool weather~~ surfaces protected from environmental conditions that could damage the applied coating until the paint has dried or weather permits removal of cover as required by the coating manufacturer.

- 1. Shop Paint.** Apply a shop coat to all metal surfaces unless otherwise specified. Do not paint surfaces in contact with other metal surfaces or concrete, except as noted in Subsection 612.03.5(A). This includes faying surfaces and contact surfaces of nuts, bolts and washers for bolted connections.

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Apply shop coat immediately after fabrication, shop inspection and shop cleaning are complete, and the work is accepted.

Do not load materials for shipment until paint is dry-dried per the coating manufacturer's recommendations. Do not apply field coats in the fabrication shop except by written approval of the Project Manager.

Use erection marks for field identification of members on painted surface. Use paint for marking that is compatible with the shop coat and the first field coat. Cover erection marks, fabricator's name and other identification with subsequent coats.

- 2. Spot Painting.** Field clean masonry and sole plates, bottom of expansion devices and all parts of steel inaccessible for painting after erection as noted above. Spot coat and apply all field coats before erection. Paint on site and allow drying thoroughly before assembling. Handle painted material carefully to prevent damage. Repair and repaint damaged surfaces at no cost to the State.

Apply the spot coat after erection and field cleaning is approved by the Project Manager, to the edges of plates, rolled shapes and to the heads of bolts and nuts and areas where the shop coat has been damaged. Where the shop coat is damaged, the Project Manager may require a substantially complete reconditioning or replacement of the shop coat. This painting is considered spot painting and is done at no cost to the Department.

Reseal small cracks and cavities not sealed by the first field coat with a zinc paste before the second field coat is applied. Submit documentation from the paint manufacturer that indicates the zinc paste proposed for use is approved by the manufacturer to the Project Manager.

~~Mix paint as recommended by the paint manufacturer while in original containers. Mix or agitate paint in containers throughout application period. When mixing two-component paint systems, mix each component first, and then mix together. The Project Manager may allow hand mixing when each coat of paint is 5 gallons (19 L) or less.~~

D. Paint Storage and Mixing. Store paints and thinners in well ventilated areas that are not subject to excessive heat, open flames, electrical discharge, and direct rays of the sun. Adhere to the manufacturer's recommendations. Store materials in heated areas when necessary. Use materials on a rotating stock basis, and leave containers closed until used. Do not use paints that cannot be stirred to normal consistency. Store paint in tightly covered containers at an ambient temperature of at least 45 F. Maintain containers in a clean condition, free of foreign materials and residue.

Remove and discard thin skins formed in the container. Do not use material that is livered, gelled, thick skinned, or otherwise questionable.

Mix paints per manufacturer's instructions and as approved. Do not thin the paint unless authorized by the paint manufacturer and approved. The Inspector must be present whenever the paint is thinned. Do not use materials that are beyond their pot

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life or shelf life. For multiple component paints, only complete kits can be mixed and used. Partial kit mixing is prohibited.

Remove waste chemical solutions, oily rags, and other waste daily. Take precautionary measures to ensure protection of workers and work areas from fire hazards and health hazards resulting from handling, mixing, and applying materials.

Minimum dry film thicknesses (DFT) are shown in Table 612-1, unless in conflict with the manufacturer recommendations. Verify the film thickness for each coat applied per SSPC PA 2 prior to the application of subsequent coatings.

**TABLE 612-1
MINIMUM DRY FILM THICKNESS**

Paint System	Minimum Dry Film Thickness
Three coat system	Primer: 3 mils (above peaks of surface profile) Second coat: 4 mils Finish coat: 2 mils
Epoxy paint for pipe piles and casings	First 2 coats with total DFT of 12 mils Final coat: 3 mils
Epoxy mastics for misc. structural steel	3 mils per coat for new steel or existing coatings 5 mils per coat for lightly rusted surfaces.
Two-component epoxies	4 mils per coat 6 mils over light rust
Calcium sulfonate alkyd	5 mils per coat
Zinc phosphate alkyd	3 mils for primer coat 1 mil for finished coat
Aluminum epoxy paint:	5 mils per coat

612.03.45 Weather Conditions

Apply paint using manufacturer's recommendations for temperature (air, substrate and paint material)), dew point and relative humidity or as follows, whichever is more restrictive.

Do not apply paint when ambient temperature is at or expected to drop below 40 °F (4 °C) within 2 hours. Do not apply paint when rain, snow or condensation is expected within 2 hours after application at the location where paint is applied. Do not apply paint when the relative humidity is greater than 85% or when temperature and humidity cause condensation on the surface to be painted. Do not apply paint to metal with surface temperatures over 110 °F (43 °C) or when the surface temperature causes the paint to blister or produce a porous paint film.

Neither weather conditions nor Department acceptance of paint materials negate ~~your~~the contractor's responsibility for satisfactory application of paint. If the painting is unsatisfactory, remove paint, thoroughly clean the surfaces and repaint at no cost to the Department. The painting is unsatisfactory if:

- Rusting occurs;
- The paint coat lifts;

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- Blisters;
- Wrinkles;
- Pinholes:
- The paint has excessive runs or sags;
- The paint shows evidence of application under unfavorable conditions;
- The workmanship is poor;
- Inadequate thickness of paint:
- Impure or unauthorized paint has been used; or
- For other reasons determined by the Project Manager.

612.03.56 Steel Components

A. Metal Bridge Rail. Apply ~~the spotall coats and all required field coats~~ to the following contact areas before erection:

- rail to post contact surface;
- expansion sleeves; and
- rail post base plates.

Apply required field coats to the rest of the rail after erection, fit-up and final adjustment of the rail to line and grade.

B. Steel Pipe Piles and Casings. Paint piles and casings as described in Subsections [559.03.8](#) and [612.03.4](#).

C. Existing Structural Steel. ~~Apply and undercoat of paint~~ Apply the specified primer coat after cleaning the surface as required by contract prior to the other field coats to all exposed edges of plates and rolled shapes; the heads of rivets, bolts and nuts; and all surfaces where bare metal is exposed.

~~612.04~~612.03.7 METHOD Inspection Equipment, Quality Assurance and Lighting

A. Inspection Equipment. Furnish the following equipment for the QA observations of the cleaning and painting operations. Maintain, calibrate, and verify the equipment in a condition that is satisfactory to the Project Manager. The equipment will remain the property of the Contractor at the conclusion of the Contract.

1. The latest editions of SSPC-Vis 1 (Abrasive Blasting), SSPC-Vis 3 (Hand & Power Tool), or SSPC-Vis 4 (Water Jetting), as applicable to the project, or other approved visual standards.
2. SSPC Manual Volumes 1 and 2 (Latest Editions).
3. Spring Micrometer with Coarse and Extra Coarse Surface Profile Replica Tape.
4. Electric Psychrometer and one Sling Psychrometer, F.
5. U.S. Weather Bureau Psychrometric Tables.
6. Three Surface Thermometers, 0 to 150 F.
7. Probe Thermometer for Paint Temperature.
- 4-8. High/Low (Recordable) Thermometer for Paint Storage Area.

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9. Wet Film Thickness Gauge.
10. Digital Magnetic Dry Film Coating Thickness Gauge capable of transferring data to a computer (SSPC-PA 2, Type 2).
11. Plastic Calibration Shims for Digital Magnetic Dry Film Thickness Gauge.
12. Inspector's Mirror.
13. Wind Meter.
14. Clean, White, Lint-Free, Absorbent Rags.
15. Light Meter for measuring light intensity during surface preparation, painting, and inspection work.
16. Dull Putty Knife as defined by SSPC SP 2 and/or SP 3 under 2. Definitions, 2.3 Dull Putty Knife.
17. Blotter Paper.
18. Dry Film Thickness calibration plates traceable to the National Institute of Standards and Technology.
19. Measuring stick/pole to measure platform under clearance. The stick/pole must be collapsible and have a minimum measuring height for the required clearance established by the MDT.
20. Provide lighting, including power sources, to supply adequate illumination to all surfaces being prepared, painted, or inspected, including the underside and inside of the containment system, when containment is employed. Meet SSPC-Technology Guide No. 12 for lighting. Adjust the floodlighting to avoid glare to marine and vehicular traffic.

612.03.8 Quality Control (QC) Plan, Inspection Procedures, and Recording Systems

QC Inspectors. A Contractor provided QC inspector must be on site full time during cleaning and painting operations. Provide documentation that personnel performing quality control related functions are experienced and qualified to perform the work and have completed the training through The AMPP (Formerly NACE/SSPC), Minimum SSPC PCI Level 1 or NACE CIP Level 1.

Submit a Quality Control Plan for providing daily job quality control per SSPC-QP1 for surface preparation and painting operations. Inc the following in the Quality Control Plan:

1. Records of standards and specifications for coating inspection work and their utilization.
2. System for filing inspection reports.
3. Demonstration that inspection equipment and calibration standards and procedures for calibrating the inspection equipment are available.
4. Procedures to stop nonconforming work.

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5. Procedures for verifying proper coating application.
6. Procedures to ensure that each major operation is inspected, and the inspection results documented. Contractor QC inspections must include:
 - a) Effectiveness of protective coverings to control project debris, paint spatters, overspray, drips, paint spills, etc., while painting over roadways, waterways, machinery areas, and areas in the vicinity of abutments and private properties.
 - b) Ambient conditions.
 - c) Compressed air cleanliness and, if required, acceptability for breathing.
 - d) Surface preparation (solvent cleaning, pressure washing, hand/ power tool or abrasive blast cleaning, etc.).
 - e) Coating application (specified materials, mixing, thinning, and wet film thickness).
 - f) Dry film thickness per coat.
 - g) Recoat times and cleanliness between coats.
 - h) Coating continuity and coverage (free from runs, sags, overspray, dry spray, pinholes, shadow-through, skips, etc.).

Maintain copies of the Contractor's daily job quality control records on the project and available when requested. Submit records from on-site audits and inspections from SSPC, OSHA and EPA as requested by the Project Manager.

612.03.9 Minimum Contracting Requirements for Field Painting.

1. Certified as a SSPC-QP1. Standard Procedure for Evaluating Qualifications of Painting Contractors: Field Application to Complex Structures is required for workers removing or applying paint.
2. Certified as a SSPC-QP2, Category A. Standard Procedure for Evaluating Qualifications of Painting Contractors to Remove Hazardous Paint is required for workers removing by abrasive blasting cleaning.

All certificates are to be effective prior to Award of Contract and remain in effect for the duration of the Contract.

612.04 METHOD OF MEASUREMENT

Structure finish is not measured separately but is incidental to the items being finished.

612.05 BASIS OF PAYMENT

Structure finish is not paid for separately but is included in the cost of the item finished and includes all materials and resources necessary to complete the work.

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710.02.1 Paint Coating Systems for **New** Structures

- A. ~~Epoxy~~ **Inorganic** Zinc Rich Primer. Meet AASHTO M 300 Type I or II requirements, excluding those in Section 4.7.

710.05 Paint Coating Systems for Existing Structures

Meet the requirements of NEPCOAT - Qualified Products List, for Protective Coatings for New and 100% Bare Existing Steel for Bridges, NEPCOAT System B - Organic zinc rich primer / Epoxy or Urethane intermediate / Aliphatic urethane finish.

710.06 Overcoating Systems for Existing Structures

Include a full penetrating sealer primer coat along with full coats of B. Intermediate coat and Finish coat from 710.02.1 Paint Coating Systems for New Structures. Submit coating manufacturer product data sheets for each coating within this system along with a letter stating that their system will be compatible with the existing system on the structure.

REASON: Spec updates

COMMENTS:

SECTION 403 UPDATE WILL BE IMPLEMENTED IN SPEC BOOK V3.1

SECTION 403

BITUMINOUS CRACK SEALING

403.01 DESCRIPTION

This work consists of routing, cleaning and sealing the transverse and specified longitudinal cracks ~~in accordance with Subsection 403.03.1 in in~~ the roadway surface with the ~~specified~~ required sealant.

403.02 MATERIALS

A. Crack Sealant. Use a sealant that is listed on the QPL and in accordance with Subsection 707.01 for cracks smaller than 1.5 inch (38mm) wide.

~~A.B. Crack Sealing-Mastic.~~ ~~Furnish Mastic in accordance with ASTM D8260 Type 3 for cracks wider than 1.5 inch (38mm) wide.~~

~~B. Backer Rod.~~ ~~Furnish backer rod that is listed on the QPL. Furnish backer rod in accordance with ASTM D5249, Type 1. The backer rod used must be compatible with the crack sealant placement temperature and sized for cracks in accordance with Subsection 403.03.4.~~

~~B.C. Blotter Material.~~ Use toilet paper or an approved liquid blotter material for crack sealant. The liquid blotter must be a commercially manufactured surfactant. Provide blotter that is not detrimental to the crack sealant or the surfacing material.

403.03 CONSTRUCTION REQUIREMENTS

403.03.1 General

Install crack sealant and crack sealant mastic in accordance with the Detailed Drawings and the Contract. Install in accordance with the manufacturer's recommendations. Submit the manufacturer's installation instructions at least 15 calendar days prior to the installation.

Work half of the roadway at a time.

Limit routing and crack sealing work to 1 maximum 2.0-mile (3 km) work area.

Submit the type of blotter material and application rates to be used for crack sealant to the Project Manager ~~10-15~~ calendar days before beginning crack seal operations. The application rate must be sufficient to protect the crack sealant material.

403.03.2 Routing

~~Rout all existing cracks that are between 1/8 and 1 inch (3 and 25 mm) wide.~~

~~Rout all longitudinal cracks to produce straight 3/4 inch (19 mm) vertical walls and a 3/4 inch (19 mm) wide flat bottom reservoir.~~

~~Rout the transverse cracks to produce straight 1/2 inch (13 mm) vertical walls and a 1 1/2 inch (38 mm) wide flat bottom reservoir.~~ Rout existing cracks in accordance with the Detailed Drawings.

Rout when the roadway is dry.

SECTION 403 UPDATE WILL BE IMPLEMENTED IN SPEC BOOK V3.1

Remove and dispose of the routed material from the roadway before opening the roadway to traffic.

403.03.3 Cleaning

Ensure the joint or crack has been properly cleaned using compressed air. Vegetation that cannot be removed using compressed air must be removed using other means.

The reservoir and crack must be dry and free of dust, dirt, and loose materials immediately before placing the backer rod, if applicable, and applying the crack sealant. or crack sealant mastic.

403.03.4 Crack Sealing

~~Install backer rod in cracks 1½-inch (38 mm) wide and larger.~~ Place sealant material as soon as practicable after the routed cracks are deemed clean and dry. Place sealant material within 24 hours of routing.

Follow the sealant manufacturer's handling, mixing and application temperature requirements. Meet the following requirements:

- Ensure no moisture is present in cracks or reservoirs to prevent bubbling and non-adhesion of sealant during ~~installation;~~installation.
- Apply sealant filling the reservoir flush to the top using a pressure type ~~applicator;~~applicator.
- Do not allow sealant to collect or pool at the low end of crack or reservoir ~~elevation;~~elevation.
- Open the completed work to traffic once the crack sealant does not track, ~~and~~
- Repair or replace all seal work damaged by traffic at Contractor expense.

Seal previously repaired cracks to restore water resistance. Spread and smooth the sealant as required to seal the reservoir, but do not exceed 2 inches of spread sealant on the roadway.

Apply blotter material to all ~~crack sealing~~sealed cracks.

403.03.5 Crack Filling Mastic

Handle and apply the crack sealing mastic in accordance with the manufacturer's recommendations and the following:

- 1) Do not rout cracks to be filled with mastic
- Do not apply on wet or frosty surfaces. -
~~Do not apply on wet or frosty surfaces. Follow manufacturer's recommendations for temperature and surface conditions.~~
- 2) Ensure the joint or crack has been properly cleaned using compressed air
- following the manufacturer's recommendations. Vegetation that cannot be removed using compressed air must be removed using other means. Do not rout cracks to be filled with mastic.

SECTION 403 UPDATE WILL BE IMPLEMENTED IN SPEC BOOK V3.1

- ~~3) Apply mastic repair material immediately after cleaning the crack or joint.~~
- ~~Prevent mastic from flowing out of the end of the crack.~~
- ~~4) Place mastic using the appropriate melter (hot pot). Equipment must be capable of heating the product in a melting device. The melter must be equipped with an effective horizontal agitator system that is able to maintain a uniformly mixed product, have a thermostatically controlled hot oil jacketed heating system, and have an effective means of dispensing the product.~~
- ~~Pour into the prepared areas at the proper application temperature. Ensure the hot-applied material is levelled and the edges are feathered down to the roadway surface using an appropriately sized shoe for the crack and deflected area around the crack.~~

~~The maximum allowable deviation from level between a 24" straight edge and the mastic surface will be 1/8". A second application may be required to meet this tolerance but will not be measured for payment.~~

403.03.65 ~~Temperature Weather~~ Limitations

Do not rout when the mat temperature is below 35 °F (2 °C).

Apply the sealant when the roadway surface temperature is between ~~35-40~~ and 120 °F (2 and 49 °C).

Cease crack sealing operations if a rain event occurs. Do not resume sealing operations until cracks are clean and dry.

403.04 METHOD OF MEASUREMENT

Crack sealing is measured by the pound (kg) of material placed.

Crack Filling is measured by the pound (kg) of material placed.

Blotter material is not measured separately.

403.05 BASIS OF PAYMENT

Payment for the completed and accepted quantities is made under the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Crack Sealing	Pound (kg)
<u>Crack Sealing Mastic</u>	<u>Pound (kg)</u>

Blotter material is included in the contract unit price and is not paid for separately.

Payment at the contract unit price is full compensation for all resources necessary to complete the item of work in accordance with the contract.

REASON: Spec updates

COMMENTS: The Detail Drawings will be updated to match the spec changes. This proposed change will require additional time before it can be placed into the spec book if implemented, and would be with Spec Book V3.1.